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Railway Coal Supplies

THE decision of the Ministry of Fuel & Power to authorise the import of coal into this country again this year, regrettable though the need for this is, should bring some relief to the problem of supplying British Railways with coal in sufficient quantities. The import figure is likely to be comparatively small. Some 600,000 tons, representing less than one-third of one per cent of the total production figure of 223,500,000 tons, were imported last year. The complaint has been voiced that a sufficient margin of safety for the country as a whole is not being provided against the possibility of a hard winter. Railway stocks are understood to be sufficient for rather less than three weeks, and when it is considered that in 1952 British Railways used 13,327,000 tons, at a cost of some £43,000,000, it will be clear that their consumption is one of the most important factors in the coal economics of this country. The National Coal Board and British Railways work in close conjunction, and the Board has always made every effort to meet the needs of the railways, but the present state of coal production, exemplified by the decrease of eleven points between the March and April figures for mining and quarrying in the industrial output index of the Central Statistical Office, show that supplies must be expected to decline. The quality of home supplies for railways is also dropping as some of the most suitable seams are worked out, and this must have its inevitable effect on locomotive performance. Imported coal will involve haulage in excess of that needed to distribute home supplies, but it is to be hoped that, in default of such supplies, the import programme will include at least a proportion of coal suited to the railways' needs.

United States Loan for Rhodesia Railways

A STERLING loan of £3,571,000 is to be made by the United States Foreign Operations Administration to the Federation of Rhodesia & Nyasaland to assist the purchase of material ordered by the Rhodesia Railways. The official statement says that in the terms of the loan future Rhodesia Railways orders will be placed after tenders have been issued on an international basis. Under a new £75,000,000 programme for the Federation just announced by Sir Godfrey Huggins, Prime Minister, more than £30,000,000 will be spent on transport and communications. Since the railways were nationalised in 1947, more than £50,000,000 has been spent on their development, and by 1957 another £20,000,000 will probably have been invested. The United Kingdom has made loans of £30,000,000 in 1947, £7,700,000 in 1951 and £5,000,000 last year. The freight traffic of the Rhodesia Railways has increased by about 80 per cent since 1947, and their fixed assets have risen from £23,500,000 to £51,000,000. The American loan covers a period of 20 years, will bear interest at 4¼ per cent, and is the first loan from any source to the new federation.

British £5,000,000 Rail Order from Persia

AS a result of skilful negotiation by Sir George Binney, Travelling Director of the United Steel Companies, Limited, that group has received an order from Persia to supply permanent way material to the value of £5,000,000. The contract, gained in the face of keen Continental and American competition, calls for the delivery over three years of 100,000 tons of rails and 4,000 tons of fishplates, with fishbolts, washers and turnouts, and it is the largest single order of its type to be secured by British makers since the war. It is particularly gratifying in coming so soon after the resumption of trading and other relations between this country and Persia. The Workington Iron & Steel Company is likely to roll some 30,000 tons of the rails. Anderston Foundry Co. Ltd., Colvilles Limited, Cargo Fleet Iron Co. Ltd., Dorman, Long & Co. Ltd., Skinningrove Iron Co. Ltd., and South Durham Steel & Iron Co. Ltd. are also sharing in the order. The rails will be used not only for renewals on the Trans-Iranian line linking the Persian Gulf with the Caspian Sea and passing through Teheran, the capital, but also to complete a line linking Teheran with Tabriz, an important city in the north-west, and build an extension to Meshed.

International Internal Combustion Engines Congress

THE next International Internal Combustion Engines Congress will be held at The Hague next May. One of the two subjects for discussion will be the present-day possibilities of the technique of the diesel railway traction engine. The first Congress was held in Paris in May, 1951, when more than 500 delegates met and discussed about 100 papers, and a colloquy was held in Milan in April, 1953. The meeting at The Hague will last six days, and the choice of visits includes one to Leidschendam for a demonstration of diesel traction equipment of the Netherlands Railways. A dictionary containing about 3.000 words in the field of internal combustion in English, French, German, Italian, and Spanish is being prepared for the Congress. Those attending will also be able to pay visits individually to works. There will be seven working sessions of the Congress and some 30 papers will be presented, the number having been limited to allow ample time for discussion. The address of the Secretariat

of the Permanent Committee of the Congress is 10, Avenue Hoche, Paris, 8, to which application for the provisional programme to be sent out in January should be made.

Shortening Distances in Spain

WHEN the original main lines were laid out in Spain, directness was often sacrificed to economy. Sparsity of population and difficulty of terrain caused the builders —particularly of lines linking Madrid with the coast—to seek a course which would serve as many towns as possible and make use of all available gaps and valleys, often resulting in a roundabout route. The main line of the former Northern Railway from the French frontier to Madrid is a good example. Beyond Burgos it takes a wide sweep, to include such towns as Valladolid and Avila and also avoid striking due south over the Guadarramas. Even so, this detour does not avoid some heavy gradients and adds considerably to the distance. With the development of the country, the need to shorten some of the more circuitous routes became desirable. The civil war and the second world war held up an important programme of new lines but steady progress is now being made. The direct line to Valencia was completed in 1948, and a direct line to the north-west and the long-discussed Madrid-Burgos cut-off are well in hand. A junction railway is being driven through the heart of Madrid to link the former Northern and M.Z.A. lines, at present only indirectly connected. These large-scale projects, described elsewhere in this issue, place Spain in the forefront of new railway construction.

The Talgo-Type Train in America

THE Talgo-type train is seen by Colonel S. H. Bingham, Executive Director & General Manager, New York City Transit Authority, as "America's chance to woo passengers back to the rails." In a booklet entitled "The Future of Talgo" he calls the Talgo coach the first really new concept of railway design in nearly a century. Because of its design the Talgo train can take curves at a high speed, thus increasing the average speed and allowing schedules to be cut by 25 per cent and more. It could thus successfully compete with short-distance air services and with the private car over distances up to 500 miles. A compartment sleeping car on the Talgo principle would accommodate 18 compared with the 21 of a standard "roomette" of U.S.A. railways but would weigh 27 tons instead of 67. A gas turbine of 450-600 h.p. is envisaged as the ideal motive power, but for the present the diesel-electric-powered Talgo-type of train would be built and put into service. American industry, which has been closely studying the performance of the Talgo trains, running for some time on the Spanish National Railways, is ready, according to Colonel Bingham, to build new designs for American service. The Talgo design was described in our June 24, 1949, issue, and details of the running of the Talgo trains in Spain appeared in that of February 16, 1951.

Heat Treatment of Rails

WHEREAS the sorbitic treatment of rails in Great Britain, which gave considerably increased resistance to abrasive wear at a relatively small additional cost, has gone out of fashion because of the development in service of irregular surface hardening, resulting in very noisy running, the heat treatment of rails in the U.S.A. is constantly on the increase. At the Steelton works of the Bethlehem Steel Company it is now possible to treat rails up to 60 ft. in length, including those that have been machined and fabricated for switch and crossing work, for which the plant is chiefly intended. Two gas-heated furnaces, 72 ft. long, 10 ft. wide and 7 ft. deep, with pyrometrically-controlled and automatically-recorded temperature, are used for heating the rails, holding them at predetermined temperatures, and tempering; the quenching is carried out in an oil-bath. To verify the correctness of the treatment, with each batch of heat-treated rails a 10-in. length of rail from the same cast of steel is passed with the batch through the process, and the tests made on this piece are regarded as representative of the whole batch. In switch and crossing work, crossing rails are treated after planing, but in view of the thinness of switch-tongues, it has been found advisable to plane these after treatment. It would be interesting to know if U.S.A. railways using these rails have experienced any trouble with irregular surface hardening.

Railway Education in Germany

IN the last two or three years much progress has been made with the rehabilitation and reorganisation of railway training schools in Germany and the figures for last year show that over 16,000 persons took courses in the various centres, completely occupying the facilities afforded. Additional schools were opened as buildings hitherto requisitioned, or used temporarily for other purposes, became free. The number of special courses, however, had to be reduced. For the first time since the war three-week special courses for the higher ranks of officials could be given. Some dealt with new practice, such as the use of supersonic apparatus for testing equipment. New textbooks and instructional works were issued covering courses for certain ranks, such as guards on express trains and assistants in particular departments. Before the war this work was powerfully aided by the Reichsbahn special printing department which issued textbooks on every aspect of railway operation. This has been re-started, and during 1953 15 new volumes were added, bringing the total in circulation to 44.

Electrification and the Human Element

IN examining reasons why electric traction holds more possibilities today than in the past, Dipl.-Ing. H. Fritsche, of the German Federal Railway, has given weight to certain factors associated with passengers and staff. He thinks there is good reason to suppose that electrification would win traffic back from the private car; public favour for the up-to-date in transport should be noted, particularly as this aspect of road travel has enabled users to overlook drawbacks such as restricted space, no refreshment or sleeping facilities, impossibility of washing or reading on the journey, and higher risk of accident. Perhaps modern electric stock running on fast and frequent schedules would remind the public of certain advantages characteristic of railway transport in general. Herr Fritsche, whose views are quoted in the May issue of *Electric Traction on the Railways* (French edition), also mentions the longer working life of electric locomotive drivers, giving a general retiring age of 65, against 53 for withdrawal from main-line duties on steam locomotives and 62 for retirement. This is one useful contribution to staff problems, but another and complementary advantage of electric traction may well be that its better driving conditions will assist recruitment in competition with other industries.

The First Route Setting Signalbox

ALTERATIONS at Bordeaux are to result in the abolition of the No. 1 signalbox at the St. Jean Station, opened January 14, 1903, and the first one to be operated regularly on the route setting principle. It is true that some experiments with a similar object had been made in Germany a few years before without permanent results and, indeed, the principle exercised no attraction there again for a very long time. In France, on the contrary, route setting, using several designs of apparatus, gained favour steadily and route lever signalboxes came into extensive use on many of the former separate railways. The all-electric equipment used at Bordeaux was due to G. Bleynie, Chief Civil Engineer to the old Midi Company, and P. Ducousso, Engineer to then Thomson-Houston concern, whose automatic signals also were used on lines in the south and south-west of France. The frame contained miniature levers, mechanically interlocked, with electric detection, combined with the Regnault block. There were no track circuits, but on the signalbox diagram the condition of each signal was repeated at its exact location in pictorial form. The equipment, which has given satisfaction for half a century, is to be replaced by an "all relay" box, also with route setting.

German Locomotive Performance

THE first of the three postwar new standard steam locomotive classes of the German Federal Railway, built in 1950-51, was the class "23" 2-6-2, intended to be the modern replacement of the most powerful of the class "P38" 4-6-0, of which thousands are still running. Construction of another 27 units of class "23," now almost completed, directs attention to some of the test results obtained on the first batch by the central design office (steam) at Minden. A top d.b.h.p. of 1,650 was obtained, with a boiler evaporation rate of 17·2 lb. of steam per sq. ft. of evaporative surface (fireside) per hr. and a firing rate of 150 lb. per s.f.g. per hr. Maximum boiler efficiency of 81·2 per cent was reached at an evaporative rate of 6½ lb. per sq. ft. e.h.s. per hr.; lowest boiler efficiency was 64·2 per cent at an evaporative rate of 18·4 lb. per sq. ft. of e.h.s. per hr., equal to a total evaporation of 28,600 lb. per hr. Empty weight of the all-welded boiler is 52,600 lb.; working pressure is 227 lb. per sq. in. Maximum thermal efficiency measured was 9·49 per cent at 27½ m.p.h. and 12,500 lb. drawbar tractive effort, i.e., at 910 d.b.h.p. Between the limits of 12½ and 53 m.p.h. when exerting 5,900 to 6,000 lb. d.b.t.e., the efficiency remained at about 8·0 per cent. Specific coal consumptions were 1·9 to 2·15 lb. per d.b.h.p.hr. at 25 to 37 m.p.h. and 800 to 1,100 h.p.

Articulated Locomotives

FOR more than a century locomotive engineers have been engaged in the development of locomotives with the object of duplicating the driving mechanism, while retaining the single boiler. Many instances of this type have been patented. Some have been very successful, such as the Fairlie, Shay, Mallet, Kitson-Meyer and Beyer-Garratt. A study of this subject is made in an article of which the first part appeared last week and which is concluded in this issue. The five articulated locomotive designs are compared. While the Beyer-Garratt design, for example, is particularly adaptable for metre and 3 ft. 6 in. gauge railways, as is evidenced by the number operating in the African continent, many articulated locomotives, both of this and other types, have been supplied to standard and broad-gauge railways. Among the first broad-gauge Beyer-Garratt engines were 30 supplied between the years 1926-1940 to the former Bengal Nagpur Railway for heavy coal traffic; the latest, the "P" class, have a tractive effort of 70,000 lb. and weigh 230 tons, with an axleload of 17 tons. Outstanding among articulated locomotives are the 50 Beyer-Garratts being built for the standard-gauge New South Wales Government Railways.

New Construction in Africa

ONE of the most significant features of the economic development of the African Colonial countries is the extent of new railway construction now being carried out either to serve new ports or territory. Having regard to the size of the country, the new projects in the Gold Coast have a particular interest. There, work on a second port for ocean-going vessels is about to begin at Tema, in the eastern part of the colony, and railways to transport the materials needed to build it and to link it with the main railway system have just been completed. In addition, the existing deep-water port of Takoradi, where a great expansion of facilities has been taking place, is to be brought nearer to Accra, the capital, by a 50-mile extension of a branch which will form a chord line linking the bases of the gable-shaped main line system.

On the other side of the Continent, in East Africa and Southern Rhodesia, the scene is also one of much activity in new construction. The main line through Kenya and Uganda is being extended westwards to the foothills of the Ruwenzori range, within striking distance of the Belgian Congo, and opening up an area rich in mineral wealth and promising in agriculture. The extension will be some 209 miles long and will bring the length of the Kenya-Uganda main line to over 1,000 miles from the coast at Mombasa. In the Southern Province of Tanganyika the official opening on July 17 by the Governor of Tanganyika of the port of Mtwara and the railway linking it with the inland township of Nachingwea will signalise the satisfactory completion of a project which began seven years ago when it was hoped to export 400,000 tons of groundnuts a year from that region. The collapse of the groundnuts scheme, their *raison d'être*, delayed the construction of the port and railway, but after a reassessment of the possibilities of other traffic and the conclusion of fresh financial arrangements, work was pushed ahead. With a more dependable and diversified traffic, the Mtwara-Nachingwea line should well justify itself as the latest addition to the network of the East African Railways, the largest British colonial system.

New international railway routes are sufficiently rare for attention to be focused on the direct line being formed between Bulawayo and Lourenço Marques, in the construction of which the Rhodesia and Mozambique Railways are sharing equally. Sir Roy Welensky, Minister of Transport & Communications of the Central African Federation, has said recently that work on this line should be completed by the end of next year. The reasons which prompted the adoption of this project, in preference to one which would have involved less mileage and others which would have entailed merely the improvement of existing outlets to the coast from the land-locked Rhodesias, have been cogently put by Sir Arthur Griffin, whose statements were commented on in an editorial note in our June 11 issue. The new line, involving about 400 miles of new construction, half in Southern Rhodesia and half in Mozambique, will confer many benefits, but chiefly it will give Rhodesia the use of the fine port of Lourenço Marques, reached over a well-laid out line, and reduce its great dependence on Beira, another Mozambique port, and also on the South African ports, with the long hauls necessary to reach them. A brief report of the progress of this important work, in particular that in Mozambique territory, is given in our Overseas columns this week.

With most of these schemes, often involving arduous survey work in rough country and with difficulties of climate and topography to be overcome by the builders, British consulting engineers and contractors have been prominently identified. The railways of colonial Africa are in the midst of a phase of development more intensive than for many years past, and completion of the schemes now in hand will radically alter many long-established traffic flows.

Conversion from Coal to Oil Fuel

THE East African Railways are among systems in tropical or semi-tropical countries that have decided in recent years to change over from coal to oil fuel for steam locomotives; in fact, conversion is well on the way to completion. As in other instances where there is no suitable indigenous fuel, rising prices, occasional or periodical shortages of coal supplies, and the possibility of more regular and economical supplies of oil induced the administration to consider the pros and cons of a change to the latter fuel. A committee was therefore appointed to study the whole subject.

It is true that this committee had available to it the results of previous tests showing that one ton of oil consumed in a locomotive firebox should perform the same amount of work as 1·43 tons of coal. Even so, it had a delicate task to compare on this basis all the main and ancillary, direct and indirect costs involved by using coal and oil and add the outlay for conversion. Among the many factors that had to be considered were the relative costs of landing, railing, off-loading and storage and fuelling of engines at locomotive depots. In operation also, the necessity for the employment of two firemen on all large coal-burning locomotives whereas only one sufficed for oil fuel, as well as the costs of cleaning fireboxes and smokeboxes and the disposal of the ashes mitigated against the existing system of firing.

On the other hand, oil-tank wagons had to be purchased

for carrying the oil to up-country depots, whereas ordinary wagons could be used for coal and washed out and returned to general traffic when the coal had been discharged. Finally there was the major consideration of the cost of installing oil-burning equipment not only in the engines but also in the form of ground and overhead tanks, piping and pumps. Experience gained in other hot countries in the adequate fuel-proofing of ground tanks was doubtless valuable, as in earlier installations elsewhere trouble had been encountered due to some percolation and loss of oil. A technical paper published by the Government of India deals exhaustively with the subject of coal to oil conversion as a whole, and was compiled in connection with the conversions of the Bombay area of the Great Indian Peninsula and the Karachi area of the North Western Railway.

The report of the East African Railways & Harbours committee, based on the then-current prices of coal and oil, showed that, all things considered, the balance of cost favoured oil. Accordingly, the lowest prices for oil supply quoted by oil-company tenderers were adopted for the committee's calculations, and a sound justification for conversion resulted. The decision to change over was made forthwith, and all locomotives on the Kenya-Uganda section—with the exception of some old shunters and wood-burners required for construction works—had been converted by the early part of 1951. Similar conversion on the Tanga line has now also been completed, and it is hoped that all Central Line locomotives will be oil-fired by the end of 1954. The change-over has proved popular with passengers and line-side farmers in the elimination of smuts and sparks, but by none is it welcomed more than by the engine-crews, and the firemen in particular. From the operating point of view also, the value of oil-firing shows important advantages in maintaining a better head of steam on heavy gradients.

Sudan Railways in 1951-52

WE have received from Mr. J. R. Farquharson, General Manager of the Sudan Railways, a copy of his report upon their administration for the year ended June 30, 1952. Actually, the management was in the hands of Mr. R. J. Hillard throughout that year, and he left the Sudan on final leave pending retirement on November 30, 1952.

The report shows that the gross revenue from all sources totalled £E.8,114,990, whereas the aggregate expenditure was £E.6,431,437, so that the net revenue was £E.1,683,553. As the previous report covered a period of 18 months few of its figures are comparable with those of the year under review. An exception was the operating ratios, which were the same, 79·3 per cent in both the periods 1950 and 1951-52. This is remarkable, especially as working expenses rose from £E.4,534,913, or by over 40 per cent as between the two periods. This substantial increase was more than offset by the considerably higher revenue earned; it was due to the higher level of prices and to the implementation of decisions based on the Mills and Wakefield Reports on terms of service and wages.

Rail traffic figures for 1950 and for the year ended June 30, 1952, were as follow:—

—	1950	1951-52
Passengers carried	1,430,671	2,163,420
Passenger receipts (£E.)	570,109	855,988
Total coaching receipts (£E.)	695,934	1,041,881
Revenue-earning goods traffic (Tons	1,008,179	1,266,365
Goods receipts (£E.)	3,612,849	4,914,270
Total rail receipts (£E.)	4,303,783	5,956,151
Total train-kilometrage	4,285,164	5,036,583

The main factor governing the working of traffic during the year under review was the need for keeping Port Sudan clear and free to continue unrestricted acceptance of imports. Consequently, the continuing shortage of locomotives and rolling stock made it necessary (1) to divert some of the exports that normally follow the Nile route to Egypt via Port Sudan, and (2) to take off a number of mixed trains between Khartoum and El Obeid to provide the necessary stock and motive power for clearing Port Sudan. Although nearly 100 new covered wagons were received and placed in service, there was urgent need for a further 200. More oil tank-wagons were also required, and old locomotive tenders had to be adapted for carrying furnace oil; 25 tank-wagons were on order and a further order for 33 was placed. Nineteen new main-line locomotives arrived after the end of the year.

The route-kilometrage open for traffic at the end of the year was 3,247 km. as well as 52½ km. of military lines. There were only minor washouts and the Nile flood was generally normal. The first overbridge in the Sudan was erected in pre-cast concrete over the main line near Khartoum station.

Apart from the rail services the most significant feature of the others was the traffic development of Port Sudan. The figures were:—

—	1950	1951-52
Revenue (£E.)	618,921	1,134,971
Working expenses (£E.)	332,373	515,781
Operating surplus (£E.)	286,548	619,190
Ratio of expenses to earnings	53·7	45·4
Average general import cargo per ship (Tons)	419	701

The rise of 116 per cent in the operating surplus is particularly notable.

Successful Improvement of French Railways

DESPITE the growth of road transport in France, the French railways still carry some 70 per cent of all the goods and 45 per cent of all the passenger traffic, but the actual flow has come to vary considerably in relation to what once obtained. Tendencies in this direction had, naturally, begun to show themselves many years ago, but between the two wars they came definitely to be reckoned with. Had war not broken out in 1939, the programme drawn up by the French National Railways at the end of the last war, of modernisation with a view to providing better services at lower cost, would have been initiated earlier.

The passengers carried at present amount to 500 million a year, about half by suburban services. The rest are very unequally spread over the main routes. On some secondary lines the traffic is understandably very small. Seasonal and other variations result in only 4,500 of the 6,600 main line coaches being used throughout the year. Some 1,200 run for four months only and 900 during one. Although the roads have taken so much of the short and medium distance traffic, improved running times, especially over the electrified section between Paris and Lyons brought much increased patronage giving encouragement to the development of fast connections between the capital and towns situated 200-350 miles away, with night services enabling places at a distance of some 600 miles to be reached in comfort and leave a whole day available for business.

Maximum user of motive power has been obtained by replacing steam by electric and diesel traction. Some 40 per cent only of the passenger traffic is now steam hauled, against 71 in 1938, giving longer runs with the one locomotive, with heavier trains, and involving much less time spent on repairs and overhauls. Electrification is, however, being reserved as a rule for the heavily trafficked routes, where the investment will yield a satisfactory return, and diesel working for setting up rapid connections between certain large towns, not only from and to Paris, but on cross country routes where improvements are much needed. On many secondary lines uneconomic services have had to be maintained as a matter of public necessity, and there expenses are being drastically cut,

sometimes involving singling the track, found to be worthwhile even when allowing for the more expensive signalling thereby necessitated.

Despite the August strike, goods traffic in 1953 amounted to 162 million *tonnes* against 133 in 1938. About 90 per cent is in complete wagon loads. Despite the considerable increase the number of wagons has fallen from 472,500 in 1938 to 363,000, because of improved wagon user with an increase of 9 to 14 *tonnes* in the average load. With the greater loads now hauled largely as a result of electrification, the gross *tonnes*-km. have risen by 67 per cent. The regrouping of marshalling yards, involving some closures and their equipment with devices such as retarders and radio communication, has greatly accelerated freight transit. Co-operation with road transport undertakings, the use of containers, and the establishment of zonal distribution centres also have resulted in marked economies, including the closing of some 900 miles of line to goods traffic.

A measure of the success achieved in effecting economies is the fact that the amount of traffic handled per person employed rose by 60 per cent. Coal consumed annually fell from 11·3 million *tonnes* in 1929 to 4·9 million in 1953. The average daily run of an electric locomotive is 260 km. against 100 for steam, a figure expected to be improved with the putting into service of the latest types. The working of the railcars also has been greatly improved in the last five years in this respect. At present about 22,400 km. of daily passenger train runs are made at over 100 km.p.h. average speed and 37,400 more at over 90. Delays and late running have fallen considerably in consequence of the greater flexibility offered by using automatic signalling over long lengths of route and traffic control systems. Combined with non-replacement of retiring staff these measures have caused the total number of railwaymen employed to fall from 514,000 in 1938 to 391,000 at the end of March, 1954. Unfortunately the railways are compelled by law to grant many special rate and fare concessions, which seriously reduce revenue.

Electrification will be completed this year between Valenciennes and Hirson, where the densest goods train traffic of the country is found, and to Geneva by 1956. Other extensive schemes are in contemplation such as Dijon-Vallorbe and Strasbourg-Basle, both shortly to be commenced, with later Paris to Lille and Strasbourg, Strasbourg-Metz-Thionville and Lyons-Marseilles. A considerable expansion of diesel working also is contemplated and a gas turbine locomotive is undergoing trials on the Paris-Cambrai line. Shunting is to be dieselised as much as possible.

Besides taking these vigorous steps to improve the operation of its own system, the management of the French National Railways has taken a prominent part in the measures of co-operation developed among European railways in recent years with such beneficial results, such as the creation of the "Europ" wagon pool; this now comprises 160,000 vehicles. Although representing only 25 per cent of the wagons admitted to such running they carry 40-80 per cent of the international traffic and idle running has been halved. Other important steps are being initiated under the auspices of the International Union of Railways, such as participation in the Centre d'Information et des Essais at Utrecht.

The Union Pacific Railroad

(By a correspondent)

THE Union Pacific Railroad can take for its motto "Serves all the West" because its lines stretch across 11 States from Omaha and Kansas City on the Missouri to Seattle in the north-west corner of Washington and to Los Angeles in southern California, while solid through trains supply links with Chicago, St. Louis and San Francisco. In 1953 freight traffic was the source of 86·5 per cent of the railroad's revenue from operating 9,820 miles of road. There was a brisk exchange of traffic with other railways, 785,820 wagons being received from connections out of a total of 1,714,145 wagons handled. Tonnage of revenue freight was up nearly 1 per cent to 49,870,000 and the average ton was carried 611 miles, nearly 2 miles further. Taking free-hauled traffic into acount, total ton-miles rose by 0·5 per cent to 33,178 million. For comparison the British Railways ton-mileage may be put at 22,750 million, or 31 per cent less, though they owned 9,450 more miles of road.

The Union Pacific moved its great volume of traffic in train loads of 1,060 tons, equalling in size six or seven of our trains. The average train speed between terminals was 24·5 miles an hour and the train miles were less than a fifth of the number worked by British Railways. These fast freight trains spent on the road about a fifteenth of the hours recorded here—and the hourly output of freight train operation rose to 25,670 net ton-miles. Both the freight train speed and the productivity excelled the results of any of the large U.S.A. railways.

Last year the Union Pacific provided passenger train services on 5,760 route miles to the extent of eight train miles per mile of road per day. The miles were reeled off at the rate of 47·4 in an hour—the highest average passenger train speed on any U.S.A. railway. The Santa Fe, operating 8,450 miles in passenger service, came next with a speed of 45·1 m.p.h., but the Pennsylvania did extraordinarily well to run nearly double the Union Pacific's train miles over 5,290 miles of road at a speed of 44·6 m.p.h. On British Railways steam passenger trains move at an average speed of 14 m.p.h. and electric trains at 20 m.p.h., but about 34 train miles are run over an average mile of road every day.

The Union Pacific was one of the pioneers in adopting diesel-electric motive power for main-line working. About 16 years ago its streamliners began to make railway history, perhaps the best known being the *City of Los Angeles* which reaches Chicago over the Chicago and North Western's rails. The glamour of these fast and luxurious trains would seem to have been dimmed, for the Union Pacific's passenger receipts were down 8·4 per cent last year and, though a new streamliner named the "Challenger" was inaugurated between Los Angeles and Chicago in January, there was a further loss of 16 per cent in receipts during the first quarter of this year.

In 1953 the Union Pacific carried a total of 2,128,450 passengers, which was a decrease of 126,160 from 1952 or 5·6 per cent. The average journey of 734 miles was 10 miles shorter, with the result that passenger miles were down 7 per cent and average passenger takings per train mile fell from $2·59 to $2·41. About one third of the passengers travelled in sleeping and parlour cars for an average distance of about 1,000 miles. The Santa Fe is the only railway handling long-distance travel on a similar scale. Its losses of passenger revenue were even more serious—13·7 per cent in 1953 and 21 per cent in the first quarter of 1954. While the volume of passenger travel on all the U.S.A. railways has shrunk by 23 per cent since 1948, the Union Pacific has suffered a decrease of only 12 per cent.

In securing results that were on the whole commendable, the Union Pacific kept its operating ratio down to 75·6 per cent. The Board was determined to increase the net of revenues over expenses by introducing better methods of working. In 1953 gross capital expenditures of $72,263,400 for improvements to fixed property and equipment were the largest for any year in the company's history. Of that sum nearly $44,000,000 was spent on equipment. One item was an addition of 109 units to the diesel fleet, raising its strength to 748 units. The company also had 10 gas turbine-electric locomotives at work and decided to make a further experiment with that type of motive power for freight trains. In the opinion of the Board improvements in recent years constitute, to a large degree, the rebuilding and re-equipping of the system. Despite these expenditures, funded debt was reduced in every year since 1944 and for the last two years a dividend of $6 was paid per share of common stock.

XUM

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Pullman Cars

June 18

SIR,—Now that British Railways are to purchase the Pullman Car Company and to make a very welcome extension of the services, it seems opportune to point out that many of the older Pullman cars, although most comfortable when static, are both noisy and rough in motion. Is it too much to hope that, in building the necessary new cars, special attention will be given to bogie design and to sound insulation?

For such a premium service the passenger is entitled to expect a very high standard of comfort, and that more expensive vehicles be used, provided that the results justify the cost.

Here is an opportunity to experiment with a few non-standard designs, making full use of rubber-to-metal bonding, roller bearings, coil springs, shock absorbers, and so on, and perhaps even using inside axleboxes and disc brakes.

Yours faithfully,
JOHN RODGERS

"The Cottage," 132, Worrin Road, Shenfield

British Railways Traction Developments

June 21

SIR,—The article in your June 18 issue suggests that diesels cannot be used widely for main line working in this country, because they cannot run a high enough mileage owing to our short distances. As British Railways operate about 6,000 more miles of road than the longest U.S.A. railway, the argument strikes one as a little odd. Only 18 of the 132 Class 1 railways in the States operate a greater mileage than the London Midland Region, and few of the 18 serve a territory equally populous and rich in traffic potentialities. The U.S.A. railways have revised their timetables and rosters as necessary to use the higher speed and tractive power of the diesel, as well as the longer hours which it can work continuously. If given the chance, our operating staffs are quite capable of adjusting stereotyped working methods to suit the new motive power.

Your article ignores the economies which would result from the replacement of steam power by diesels of proved efficiency. In the first four months of this year the U.S.A. railways installed 255 complete diesels as operated and scrapped 1,118 steam locomotives—a saving of 863 in the total stock of locomotives. On May 1, diesels constituted 59·7 of total stock and 61·8 per cent of locomotives available for traffic. Only 3·1 per cent of the diesels were under repair, compared with 11 per cent of the steam and 10·3 per cent of the electric locomotives.

Towards the end of your article the percentage of our steam locomotives under repair in 1952 is given as 5·02. The B.T.C. report shows that the percentage covered merely 960 engines under repair in workshops. In addition 2,197 engines were at running sheds for examination or repair, bringing the number out of action to 3,157, or 16·5 per cent of the stock of 19,133. The 1953 series of *Transport Statistics* showed little change in the number of machines unfit for service throughout the year and at March 28, 1954, of 18,856 locomotives owned 999 were under repair at workshops and 2,131 at sheds—altogether 3,130 out of action, or again 16·5 per cent of ownership. These up-to-date figures are curiously like the record at the end of 1949, when 990 locomotives were at workshops and 2,295 at sheds—a total of 3,285 idle, once more 16·5 per cent of ownership.

Such statistics scarcely inspire confidence in the development of the steam locomotive. Rather they help one to understand why "the era of diesel motive power" prevails in America to the extent described in your April 16 issue. After that article was written, your contributor learned that one railroad, which owned close on 750 diesel units at the end of 1953, was so well satisfied with their performance that it had ordered 205 more units for delivery during the first six months of 1954. Across the Atlantic the diesel passed the experimental stage long ago and each extension of its use lifts operating statistics to levels which steam power could never have attained.

Yours faithfully,
YOUR CORRESPONDENT

Westminster, S.W.1

Diesel Passenger Services

June 19

SIR,—I hope British Railways are not going to be complacent over the new diesel trains working in the West Riding. The railway authorities must see that the general public is constantly reminded of the existence of these trains.

The West Riding services should soon reveal whether this is a new era in local transport or not. In both Leeds and Bradford the stations are ideally situated for business and pleasure, but recently, people could be seen in Bradford queueing for the Leeds bus while an adequate train service was leaving from a spot within 100 yds. Most of them did not know when the trains went. The public, however, readily patronises a service when it knows there is a train at certain definite intervals. The Southern Region and its predecessor, the Southern Railway, have proved this time and time again. With an interval service should go a fixed fare, as low as possible, and the same fare all day and every day.

Yours faithfully,
JOHN W. RATTRAY

Amesbury, Hindhead, Surrey

June 22

SIR,—It is very gratifying to know that British Railways have at last begun to improve their interurban and local services by the use of diesel trains and it is to be hoped that this enterprise is being supported by a programme of competitive fares without the attachment of various restrictive conditions. It should also, one would imagine, act as a tonic to railway employees in the West Riding, where railway travel has been at a low ebb for many years, and help to revive keenness in the job which is all too often lacking these days, not a matter for surprise in view of the moribund state of so many lines and stations.

A splendid opportunity for publicity, however, has been missed by the omission in the timetables of any reference to the services worked by the new trains. This is, unfortunately, an attitude typical of British Railways, and is in direct contrast, for example, to that of the Netherland Railways, which not only advertise but indicate in the timetables the services worked by diesel-electric trains and railcars. Again, in 1951, with the introduction on certain of the Dutch main lines of new rolling stock and electric locomotives, this was shown in the timetables by indicating the train numbers so worked which undoubtedly created a wider and more sustained interest than the usual short-lived newspaper publicity.

Yours faithfully,
L. BROWN

34, Leycester Road, Kenilworth

[Until all the diesel trains are in service, some of the services in the West Riding due to be diesel worked still are provided by steam trains and it is not feasible to differentiate between them. The Tyneside electric services are shown in the North Eastern public timetable as being electrically worked—ED., *R.G.*]

THE SCRAP HEAP

Classes in Spain

One of the most attractive of the narrow-gauge lines of Spain is the Cantabrian system, which is one of the series of metre-gauge railways which weave through the Cantabrian Mountains along the North Coast . . . I found it particularly agreeable that this railway did not merely label its carriages "first" and "third" but "preferente" and "economica."—*From "Locomotives of Many Lands," by Peter Allen.*

Railway Mayors

The interest of railwaymen in civic affairs is once again demonstrated by the number of holders of office in councils of all types this year. In the North Eastern Region, clerks, drivers, foremen, and signalmen are among the number, including the Mayors of Gateshead, South Shields, Wakefield, Huddersfield, and Hartlepool, the deputy Mayors of Gateshead, Hartlepool, and West Hartlepool, and the Chairman of the Northumberland County Council. In the London Midland Region, clerks, drivers, signalmen, and foremen are again represented, with one passenger guard. The list includes the Mayors of Eccles, Birkenhead, Darwen, Carlisle, Stafford, Glossop, and Dukinfield.

Obstruction on Line

Protests against authority will never lack sympathy from the general public, and there will be sorrow that the spirited—and bodily—protest against Mitcham Corporation using a public common for a dust-tip failed to effect its purpose. In spite of the human barrier formed by an ex-mayor, his wife, and many of their fellow-citizens, two motor dust-carts succeeded in forcing the pass.

A native of India, with a large family, actually made a living for a while out of this human barrier business. He and his family would lie out on the railway line in the path of a train, and when the train pulled up he would tell a hard-luck story, make a collection from the passengers, and retire to wait for the next train.—*From "The Manchester Guardian."*

Mock Crash

To test the town's emergency services, Preston, Lancs, had a mock rail crash, which produced 140 "casualties" and brought out 300 policemen, firemen, railmen, doctors, nurses and voluntary workers.—*From the "Daily Telegraph."*

Animal Casualties in East Africa

In East Africa an engine driver, besides keeping a wary eye on the line in front for obstructions caused by washaways or other elements, must look out for animals straying on to the line, attracted, at night, it would seem, by the beam of the powerful headlight. Fortunately, these accidents appear to be declining as more sections are fenced and herdsmen understand that to allow domestic animals to graze near the line is to invoke trouble.

During 1953 there were 113 animal fatalities, compared against 167 in 1952 and 133 in 1951. Cattle suffered the greatest number of casualties—71. Other figures were: donkeys 7; giraffe, 21; horses, 2; sheep, 9; elephant, 1; zebra, 1; and buck, 1. Accidents involving certain game have to be reported to the nearest Warden, and, in the case of giraffe, the tail must be presented to him.

Helicopter Rescue

Helicopters saved passengers from an express train stranded by floods down in Texas. The raging Devil and Pecos rivers tore away bridges before and behind the Southern Pacific Sunset Limited.

It came to a stop at the town of Langtry (pop. 100), named after the English actress Lily Langtry. So the air force sent 14 helicopters to lift passengers six miles to buses waiting on dry highways. The first passengers rescued were those with first-class sleeper tickets. The others queued.—*From the "Daily Express."*

A Signal Baboon

An old photograph found at Spring, South Africa, shows a baboon operating signal levers for its legless master, Mr. J. H. Wilde, at Uitenhage station some 50 years ago. The baboon was stated to have been capable of working the points under the orders of its master, given by whistles, and even to have become so proficient that it knew which levers to work for each train without instructions. It also stood on the platform to hand the keys of the coal-sheds to engine-drivers as they went by. Officials of the railway, hearing of this unusual partnership, are said to have tested the baboon in its duties and allowed it to continue to perform them.

American Museum Pieces

Photo] [*L. B. Herrin*

In foreground, 4-2-0 locomotive "Pioneer," built in 1848 for the Chicago & Galena Union Railroad, and, behind it, a Chicago suburban locomotive dating from 1880. The locomotives are shown while on their way to the Rosenwald Museum, Chicago

Retrospect

When night puts on her sombre cloak
And stars adorn the dusky sky,
I fancy I still faintly hear
The rush-hour traffic roaring by.

There is so much to think about
Ere sleep dissolves into a dream:
The sleek, essential elegance
Of any engine under steam.
A milk train lumbering up the "main,"
The warm, familiar smell of oil
As some old loco lounges by—
The office kettle on the boil.

The little branch lines that I loved,
The old-time customs, changing fast,
As progress roughly sweeps aside
The fading glories of the past;
The glories of the flower shop,
The glamour that a boat-train brings,
A distant whistle in the night,
The multitude of little things.

There is so much to ponder on,
Such splendid memories to recall,
But, truth to tell, I treasure most
The friendliness behind it all.

A. B.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

MOZAMBIQUE

New Line to Rhodesia

Good progress is reported with the construction of the new Lourenço Marques-Southern Rhodesia railway. Crossing points complete with station buildings and staff housing have been built as far as Mabelane, 50 miles beyond the Limpopo crossing. Track laying, which is going forward at 1 to 1½ km. a day is now 45 miles beyond Mabelane and is expected to be completed to the Rhodesian border before the end of the year. Construction of earthworks on the Rhodesian side has now begun northwards from the Mozambique-Southern Rhodesia border. The extension of the Lourenço Marques-Vila Luisa line to Manhiça, some 45 miles north of Lourenço Marques, has begun. This line will eventually form part of the main line to Rhodesia and will also assist development in the Incomati Valley.

EAST AFRICA

Heavy Rain Dislocates Services

Torrential rain which fell in the Nakuru district, 100 miles up-country from Nairobi on May 9 and 10, dislocated rail services for 26 hours. It is estimated that 5 in. of rain fell in less than three hours.

The main lines to Kisumu and Kampala, which run parallel at this point, were breached in several places. One of the worst washaways occurred 2½ miles from Nakuru Station where erosion caused a 20 ft. wide gap about 20 ft. deep under the track. Rails were left suspended in mid-air. It was decided that it would be more complicated to build a deviation round the obstruction than repair the existing embankment and all efforts were concentrated on restoring the Kampala line first.

About 500 wooden railway sleepers were used to form a "crib" and the eroded embankment was shored up as a temporary expedient. Beyond the site of the washaway the two lines were linked, permitting the passage of trains to both Kisumu and Kampala. Engineering personnel, at one period numbering 250, worked through the night to effect the necessary repairs, sometimes up to their waists in water and mud.

BELGIAN CONGO

Extension of 50-cycle Electrification

The Bas Congo-Katanga Railway is to extend electrification at 22,000 volts, 50 cycles, bringing the length of line electrified to 340 km. in 1956, or about 15 per cent of all the main-line system. The existing 50-cycle electrification between Jadotville and Tenke was described in our March 20 and April 17, 1953, issues.

NEW ZEALAND

Rimutaka Tunnel Progress

Trains should be running over the Rimutaka deviation by the middle of next year, according to a statement by the Minister of Railways. Completion of lining and cleaning-up in the new tunnel will not be finished for some months, but the contract will be completed about a year ahead of time.

Ventilation, not included in the original contract, has been considered necessary because of the expected use of diesel traction. This work, concreting the tunnel floor, and other works will mean occupation of the tunnel until the end of the year. Tracklaying will then begin.

Contracts for outside work on the deviation, including bridges, have been let and many earthmoving machines are at work to ensure that the constructional work is completed by about the end of the year. Thereafter, tracklaying and ballasting will take about six months.

CANADA

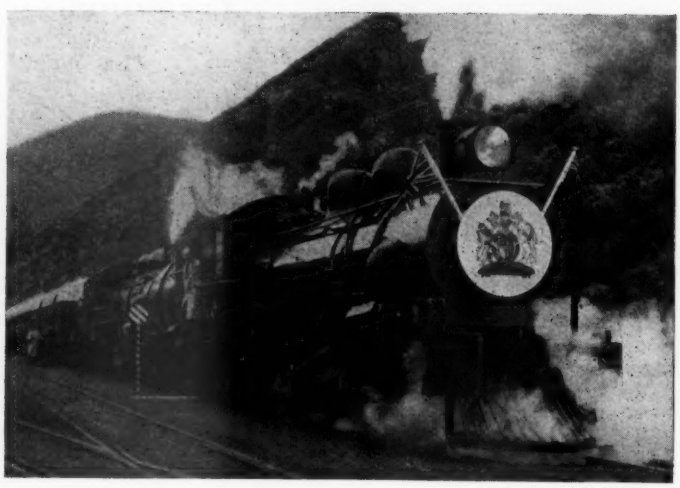
Projected C.N.R. Line in Quebec

Parliament has approved in principle legislation authorising the Canadian National Railways to build a 294-mile line which will tap a promising mineral area in the north-western part of Quebec.

The new line, to serve the Chibougamau area east of Lake St. John, will also open up great new timber reserves and stimulate expansion of hydro electric power development in Quebec. The House also approved the construction of a 27-mile branch by the C.N.R. into a new mining area north-west of Port Arthur.

The Quebec project will cost about $35,000,000. The line will begin at Beattyville, the terminus of the Barraute branch built in 1949, and will

The Royal Train in New Zealand



Pho.os] *[W. W. Stewart*

(Left) the Royal train ascending the 1 in 15 Rimutaka Incline, New Zealand Government Railways, headed by Fell-type locomotive built by Neilson in 1886; (right) the train about to leave Cross Creek for Masterton, with two North British-built "Ab" 4-6-2 locomotives.

run 149 miles north-east to Cache Lake, then 139 miles south-east to St. Felicien on the C.N.R. line in the Lake St. John area. From Cache Lake there will be a six-mile spur to Chibougamau. The whole area is heavily timbered. Forest reserves between Beattyville and Chibougamau are estimated at 30,000,000 cords of pulpwood and capable of a sustained annual yield of about 617,000 cords. Most of the traffic on this part of the line will consist of ore concentrate moving to the smelter at Noranda; the railway had already obtained guarantees for average daily loads of 325 tons of ore concentrates over the line from Chibougamau to Beattyville for six years. In addition, paper interests have undertaken to guarantee the movement of 30,000 cords of pulpwood annually for six years from the area between Bell River and Chibougamau.

UNITED STATES

The "Rebels" Withdrawn

One of the earliest streamline trains with diesel-electric power introduced in the U.S.A. was the "Rebel," put on by the then Gulf, Mobile & Northern to provide a service over the 497 miles of its main line between Jackson, Tennessee, and New Orleans. Two four-car sets maintained the service, each consisting of a power car housing also the mail and baggage space, two coaches (one with buffet accommodation), and a combined sleeping and observation car. Taking from 14½ to 15 hours, according to direction, the "Rebels" made very frequent stops, but with their comfort and smooth riding they were able by their novelty to compete effectively with faster steam services on neighbouring lines.

After the G.M. & N. had become absorbed in the Gulf, Mobile & Ohio, a "Gulf Coast Rebel" streamline train was added, running through over the 648 miles between St. Louis, Jackson, and Mobile, and this now carries through sleeping cars between Chicago and Mobile. On these trains the G.M. & O. was one of the first railways in the U.S.A. to introduce train hostesses to look after passengers' needs. The "Gulf Coast Rebel" is still operating, but on February 21 the G.M. & O. withdrew the original "Rebel" service without notice, transferring passengers on it to cars, buses or other trains to continue their journeys. The reason given was that the passenger patronage on these once popular streamliners had dropped to no more than 80 a day over their entire course, and that they were now losing over $186,000 annually.

EASTERN GERMANY

Inter-Zonal Trains

An agreement has been reached between the (Western) German Federal Railway and the Reichsbahn (Eastern Germany) on improvements in inter-zonal traffic. It provides for additional facilities which the railway authorities in the west have long been seeking to obtain.

The number of inter-zonal trains is increased from 12 to 24 a day, in both directions. During holidays such as Easter, Whitsun, and Christmas, this number may be doubled. The agreement provides for two additional crossing points at the zonal boundary—one at Oebisfelde, just north of Helmstedt (the normal Berlin route before the war) and one at Gutenfürst, in Bavaria. Both railways undertake to provide sleepers and dining cars on their services, equalise their charges on these, and accept payment in the currency of the passenger's place of residence (East or West marks). The measures are to come into force on July 15.

AUSTRIA

Reconstruction of Innsbruck Station

Civil engineering works for a new building for Innsbruck station have begun. The new building, situated at right angles to the existing building, will accommodate the new exit hall. A new entrance hall will be ready shortly. The old building is now being demolished, and the whole of the new station building is scheduled for completion by the end of 1955.

SWEDEN

Narvik Iron Ore Line

The railway linking the iron ore fields in Lapland with the Norwegian port of Narvik at present carries on an average 20 ore trains a day, each consisting of 44 wagons. New sidings are being built to increase the capacity of the line to 25 trains a day and 65-wagon trains are to be run. This will increase the tonnage of ore moved from 1,600 to 2,400 tons a train. The annual loading capacity of the port is being increased from 9,500,000 to 12,000,000 tons.

Publications Received

Railway Vehicles of the 20th Century: Railcars. Nuremberg: Maschinenfabrik Augsburg-Nürnberg A.G. 11½ in × 8¼ in. 142 pp. Sole distributors: Verlag F. Bruckmann K.G., München, Germany. Price DM. 17.—In the 117 years since the foundation by Johann Klett of what is now the M.A.N. carriage and wagon works at Nuremberg almost every type of rolling stock has been built, to a total of something like 160,000 carriages and wagons. Petrol and steam railcars were built in numbers when these types of motive power were in vogue in the early years of this century; but since 1932, diesel railcars and trains have formed an increasingly important part of the business, and this volume records the modern types, principally by a wonderful selection of more than 70 full-page photographs and many smaller ones. Apart from a general review, four important postwar orders are described in detail: the German Federal Railway VT.08 express diesel-hydraulic trains of 800 b.h.p.; the Turkish State Railways diesel-hydraulic trains of 1,100 b.h.p.; the 300-b.h.p. diesel-mechanical railcars of the Mozambique Railways; and the electric motor-coaches, made up into twin-car trains, for the Piræus-Athens electric line. Many of the illustrations are in colour, but all show the fullest detail with clarity; and with comparatively little text they make the book a technical record of modern practice in welded steel body, underframe, and bogie design and construction. Well-illustrated sections are also included on diesel engines and power plants as made at the associated works at Augsburg, and of the installations in the two *gliedertriebfahrzeuge* of the German Federal Railway, for which M.A.N. supplied the engine equipment.

Talyllyn Railway Official Guide.—This 20-page guide, priced at 1s., is a creditable production for a 2 ft. 3 in.-gauge railway only 6¾ miles long and administered on a non-profit making basis. It is printed on art paper and has good half-tone illustrations. The route of the line, running inland from Towyn, on the Merioneth coast of Wales, through fine scenery, is described in detail; there follows a history of the railway, the oldest surviving narrow-gauge line to carry passengers, and rescued from probable extinction by the efforts of a preservation society, which finances, maintains and works the line and is represented on the board, and of which membership is open to all interested.

Summer Holidays in the British Isles.—The 1954 edition of the Thos. Cook & Son, Ltd., publication "Summer Holidays in the British Isles," contains an alphabetical list of seaside and inland resorts, showing the cost of a week's accommodation at selected hotels and boarding houses. Many of the hotels are shown in photographs at the foot of the pages. As with its predecessors, this pamphlet should be of great assistance to all who are spending their holidays in the British Isles this year.

Railway Rolling Stock.—A large folder, *Manufacturing Programme*, with the text in English, illustrates and briefly describes the numerous special side-tipping wagons, ordinary freight cars, passenger coaches and railcars made by Orenstein-Koppel & Lubecker Maschinenbau A.G., the address of whose export department is Reinoldistrasse 17, Dortmund, Western Germany.

XUM

New Construction in Northern Spain

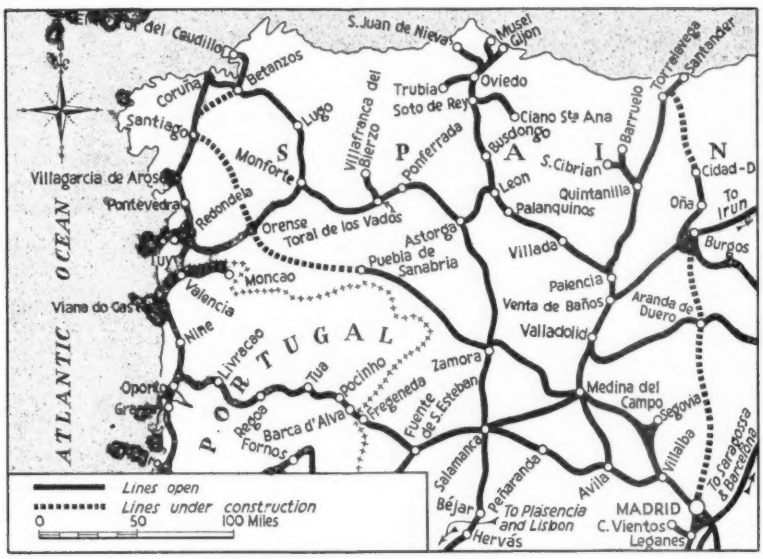
Madrid Junction Railway: main cut-off lines being built to the north and north-west

THE three termini of Madrid— Principe Pio (Norte), Atocha, and Delicias—are connected by a single-track line which first runs parallel to River Manzanares, tunnels under the Royal Palace Park (Parque del Moro), and then traverses in cutting and tunnel the west and south-west parts of the city. Along this line there are two goods stations (Paseo Imperial and Las Peñuelas) and many industrial sidings.

The development of Madrid has made these installations inadequate. The electrification of the former Norte line from Madrid to Avila and Segovia has considerably increased the traffic of Principe Pio Station, which in summer handles 200 to 250 trains. It is impossible to enlarge the terminus because of the proximity of Principe Pio Hill and the Manzanares or build new installations at the approaches. The existing facilities are sufficient only for making up and storing passenger trains; shunting is performed with some difficulty, although operating conditions were greatly improved by relaying the approach lines. Freight traffic classification is carried out at Las Matas, 15 miles from Madrid, and as far as possible, this traffic uses as terminals the Paseo Imperial and Las Peñuelas stations.

Delicias Station, the terminus of the former Western Railway (Compania del Oeste) is small and the "Lusitania-Express" (Madrid-Lisbon) is the only important train using it. The station is not central, but has good urban communications. Since the formation of the National Railways, its traffic has somewhat increased, and it is now the terminus of trains on the Badajoz line of the former Madrid, Saragossa & Alicante Railway (M.Z.A.), to relieve the overcrowded Atocha station, which was the terminus of the M.Z.A. Atocha has sufficient goods accommodation but the great increase of the traffic on the lines to the south and east since 1939 has made its passenger facilities inadequate; there are six main line and three local tracks which are insufficient during morning and evening peaks.

The construction of the new direct railway from Madrid to Burgos pointed to the need for a comprehensive solution of the Madrid railway problem. Originally it was considered possible to take the projected line from Burgos into Principe Pio Station and the then Northern Railway examined the possibility of enlarging the station by reconstructing it with two storeys, but this was decided against. Also the industrial development of the city required new junction lines well outside the centre which would offer good possibilities for siting new industries.



Lines of the Spanish National Railways in north-western Spain

Madrid Junction Scheme

It was eventually agreed that a complete new junction system should be built. The new line from Burgos was to approach Madrid directly from the north and at Fuencarral, about 4¼ miles from the centre of the city, a classification station would be established and, at Chamartin, 1¼ miles to the south, a large passenger and goods station. From Chamartin, a 4¼-mile tunnel under the Paseo de la Castellana and the Paseo del Prado would lead to Atocha. This tunnel would carry passenger trains only, with a four-track underground station at Nuevos Ministerios, 1¼ miles south of Chamartin, and a halt at Recoletos, near the Plaza de la Cibeles, in the heart of the city. For goods traffic it was decided to build a line from Fuencarral and Chamartin to skirt the districts of the north-east and east, serving the future industrial zone, and join the Madrid-Barcelona line at San Fernando and Vallecas, with a connection from Vallecas to Atocha—Clasificacíon and the lines to the south. Short connections on the south side would permit trains from the Lisbon and Badajoz directions to use either Atocha or Delicias.

In addition, a new line would connect Las Matas (on the existing line from Madrid to the north) and Fuencarral-Chamartin; thus completing the links between all lines leading into Madrid. The work has fallen to the National Railways (Renfe) to carry through and the Renfe has, in addition, planned the construction of a new passenger terminus at Atocha.

Present State of Works in Madrid

The junction scheme was officially approved in the early 1930s. Work began immediately but was interrupted during the Civil War. Afterwards, the need to undertake more essential work of reconstruction slowed down the work on the junction lines but it was never interrupted. During the last two years construction has been accelerated and the works were inspected recently by the Minister for Public Works and other members of the Government.

The formation of the Las Matas-Chamartin-Fuencarral junction line and Chamartin Station is completed. The underground station of Nuevos Ministerios, with two station tunnels of 20 m. span and 320 m. in length and platforms 6 m. wide is also ready. The double-track tunnel from Chamartin to Atocha is completed except for one short section at Recoletos; before this section is completed it will be necessary to deviate water mains.

At present work is in progress on burrowing junctions with the Madrid (Principe Pio)-Valladolid-Irun main line at Las Matas, and levelling at Fuencarral-Clasificacíon station and on the Fuencarral - Chamartin - San Fernando - Vallecas loop. From the last-mentioned there will be a branch to Barajas Airport not part of the original scheme. The work at Atocha where the new line will join the existing lines is also in an advanced stage, and an underground station has been built, 300 m. long, under the passenger hall of Atocha main station. Construction of the new Atocha terminus will not begin until the tunnelling is finished. No date

has been announced for the completion of all these works but it is likely that when the new Zamora-La Coruña line is finished the building of the Madrid-Burgos direct line and the Madrid junctions will be accelerated.

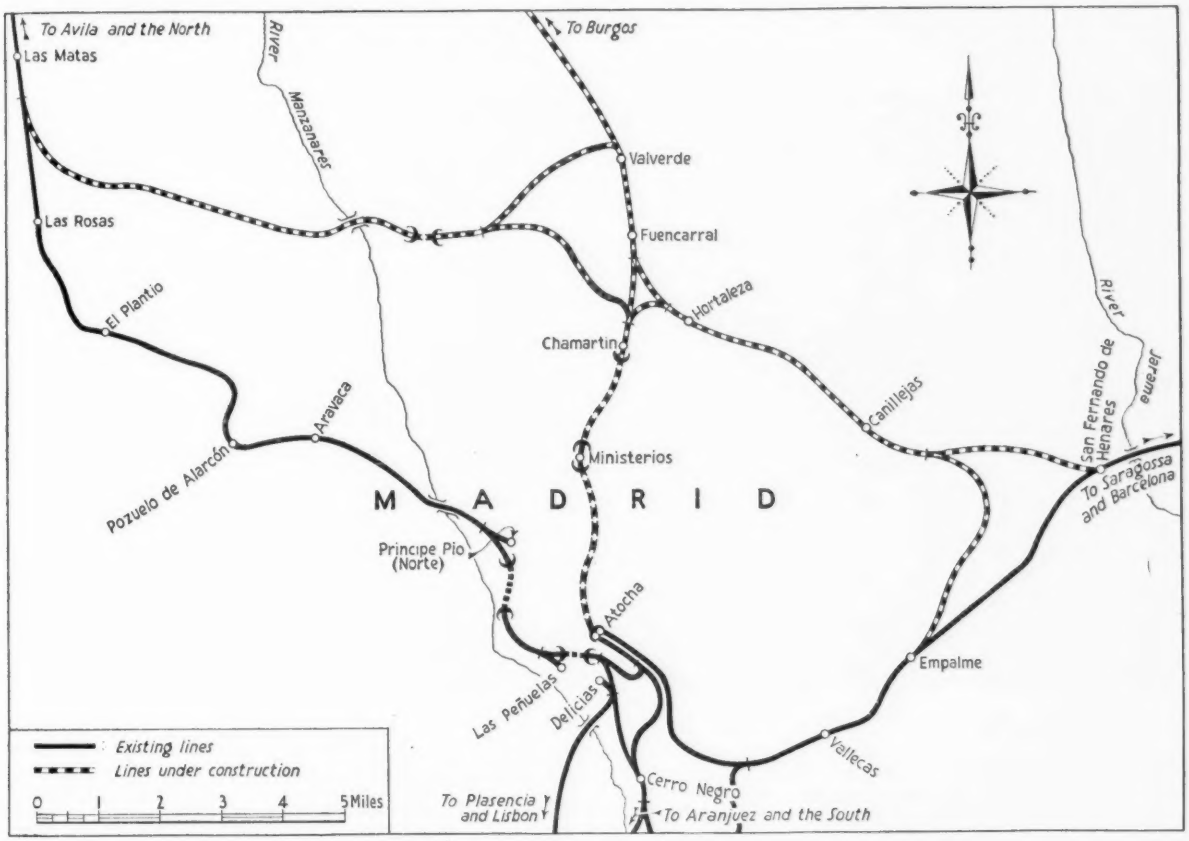
The Chamartin-Atocha section will be used mainly for local services and most long-distance trains will continue to run into Principe Pio and Atocha termini, though some will run over the new line. Local trains serving stations as far out as Las Matas will still run from Principe Pio. The existing Norte-Delicias-Atocha goods line will remain in use for traffic for the industrial sidings but through goods traffic in transit from the northern to the southern lines will use the new Fuencarral-Hortaleza-Vallecas-Atocha Clasificacíon avoiding line. This line, like the other new lines will be double track and electrified.

Railway building in Spain was carried out on the principle of serving the greatest number of localities with the minimum amount of construction. Though this made the routes circuitous it had the advantage of concentrating what traffic was offered on a few main lines. The layout of the lines from Madrid to the north and north-west areas of the country is typical of this economy, for they form a common route as far as Venta de Baños, where they fork for Bilbao and Hendaye (France) on one side and Asturias and Galicia on the other; the resultant detour through Valladolid makes the distance by rail from Madrid to Burgos 370 km. compared with 240 by road.

This state of affairs ultimately led to the planning of direct lines to shorten and improve some of the main communications of the country. The old lines, as well as being roundabout, were often laid out with sharp curves and steep gradients, to cut down cost, but the new lines were more favourably planned so that although their construction would be dearer, they would be cheaper to work. (The Cuenca-Utiel direct line, considerably shortening the distance between Madrid and Valencia, was described in our April 23 issue.)

The Madrid-Burgos direct line, now in progress, will considerably shorten the route to the north and France. It will take off from the Madrid Junction line at Fuencarral Clasificacíon and the distance between Madrid (Nuevos Ministerios) and Burgos will be only about 284 km. or 86 km. less than that via Valladolid.

The course of the line lies through the Guadarrama Mountains, but in spite of this, the ruling gradient has been kept down to 1 in 100 and the curves are nowhere sharper than 400 m. From km. 21, at 738 m. altitude, there is a climb to km. 60·6 (Lozoyuela Station), 1,125 m. above sea level, whence there is a descent to Lozoya river, which the line crosses at km. 69 (1,063 m. altitude). A climb ensues to the summit in Somosierra Tunnel km. 103·5 (1,303 m.) followed by a descent to Aranda de Duero, km. 178·4 (799 m.). The final section to Burgos is undulating. Some important works have been entailed. Of the viaducts, the most important are those over the Lozoya river, 242 m. long and 43 m. high; over the Riaza river, 240 m. long and 65 m. high; and over on the Duero, at Aranda, 115 m. long and 16 m. high. There are many tunnels, of which the longest are Medio Celemin, 2,248 m.; Mata Aguila, 2,848 m.; and Somosierra, 3,895 m.



Railways serving Madrid, showing new junction and avoiding lines being built

The constructional work can be considered as finished betwen Burgos and the River Lozoya including stations; between Lozoya and Madrid the works are well advanced. There is provision for double track, but the railway may be opened as a single line. No rails have yet been laid.

New Route to Galicia

The Zamora-La Coruna line will improve communications with the province of Galicia, in the extreme north-west. The distance between Madrid and La Coruña will be reduced by 94 km., to Vigo by 159 km. and to Santiago by

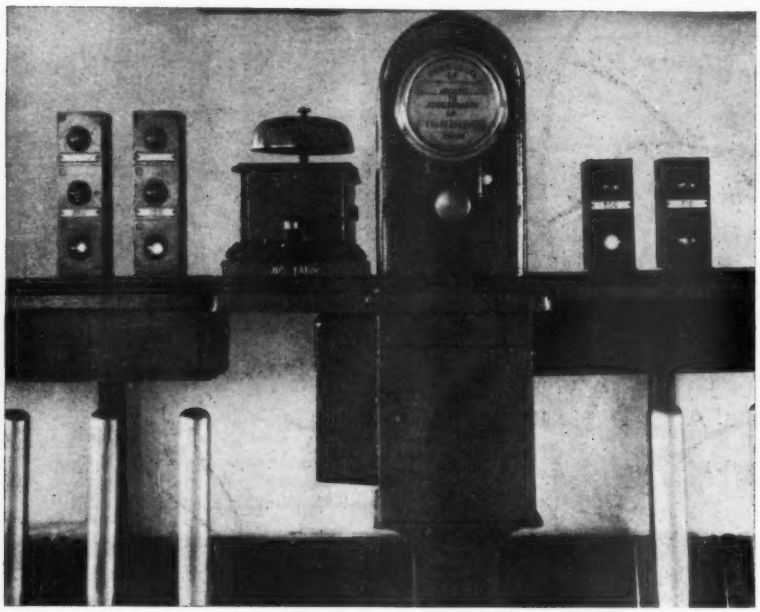
242 km. The existing route to Galicia via Leon will be freed of much traffic, and as a result it will be easier to develop the coal and ore traffic from the Ponferrada basin.

The new line has a total length of 453 km. and traverses hilly country. Its first section from Zamora to Orense runs near the Portuguese border. The ruling gradient is 1 in 66 and the sharpest curves are 400 m. To achieve this it has been necessary to build many works. Of the 182 tunnels, with a total length of 74·3 km., the longest is Padornelo Tunnel about 6 km. long. The Martin Gil Viaduct over the Esla has a total length of 480 m. and a height of 45 m. Its reinforced concrete central arch of 210 m. span, is one of the largest of the type in the world. The viaduct over the River Mino at Orense, is 359 m. long and 45 m. high.

It is hoped to open the line throughout in 1955. The Santiago-La Coruña section was opened in 1943; the priority granted to this section was prompted by the need to establish direct communication between La Coruña and Vigo, via Santiago. The Zamora-Puebla de Sanabria section was opened in September, 1953. Some 271 km. between Puebla de Sanabria and Santiago remain to be completed. The line is being laid with the standard rail of 45 kg. per m., and the stations are equipped with colour-light signals and electrical interlocking.

Block Instruments on the Western Railway of India

Good service before gradual replacement on installation of continuous track-circuiting



Sykes block instrument in Andheri "B" cabin, Western Railway, India

SYKES lock-and-block instruments have been in operation on the former Bombay, Baroda & Central India Railway and on its successor, the Western Railway, for over 40 years. They were first used on the double line between the then terminal station at Bombay Colaba to Mira Road, 26 miles. In 1924, additional tracks were laid between Grant Road and Borivli to provide up and down fast and up and down slow lines, for which Sykes instruments also were used. Originally the track releases were made by mercury treadle, but these were gradually replaced by short, battery-operated track circuits.

In 1926, plans were prepared for the provision of three-aspect colour light signals and continuous track circuiting on all lines between Colaba and Andheri. Apart from modernisation the improvements were needed in connection with electrification of the local lines between Colaba and Borivli and construction of the new Bombay Central terminus.

The first stage comprised continuous tracks between Churchgate and Grant Road and the replacement of the manually-operated semaphore signals by colour lights also manually controlled and selected through the relevant track circuits. This effected the first release of Sykes instruments on this section.

Bombay Central Signalling

By the end of 1927 multiple-unit electric trains were in service between Colaba and Borivli. Bombay Central was opened in December, 1930, and provided with three-aspect signalling and e.p. point operation from a 120-lever power frame. The approaches to Bombay Central at Mahalakshmi were signalled with colour lights and the more important points power operated from the existing mechanical cabin at that place.

About the middle of 1931 Colaba was entirely closed and a modern terminal for suburban trains opened at Churchgate, the next station out. This completed the first stage in installing continuous track-circuiting and colour-light signals between Churchgate and Mahalakshmi. The released Sykes instruments were used for programme overhaul to keep in repair those remaining in service.

By October, 1935, a 50-lever power frame had been completed at Mahim, the junction with the Harbour branch, and an 101-lever frame at Bandra, where many suburban trains reversed.

The next stage was to fill in the gap between Mahalakshmi and Mahim and this was completed by the end of 1936. Besides release of a number of Sykes instruments, 15 mechanical cabins had been closed and removed.

The final stage of the work to date has been the extension of continuous track circuits to Andheri. All stations between Andheri and Mira Road have colour-light signals and track circuits in station yards only; Sykes instruments remaining for train signalling.

It was intended to complete continuous track circuiting between Andheri and Borivli, as by that time the Sykes instruments had passed beyond their economical life and only intensive maintenance kept them in operation. For want of funds the proposal was deferred until a threatened breakdown of the block system forced the installation of the more modern instruments at that time available in India.

It is hoped that one of the older instruments will be preserved in the museum of the Railway Staff College at Baroda.

BEDDING PLANTS BY RAIL.—A large nursery firm at Norwich recently despatched by rail several million bedding plants to towns and cities throughout the British Isles. The plants, in nearly 180,000 trays, were shipped in just over three weeks, although originally the firm estimated that the job would take at least a month. On some days as many as 73 wagons were loaded and despatched successfully.

The Advantages of Articulation—2*

Examples of rack, adhesion, and articulated locomotives

By George W. McArd

ANOTHER excellent feature in the Livesey-Meyer design is the removal of the side tanks from the boiler, thus allowing better proportions for boiler and firebox, as well as improved access.

Kitson-Meyer engines were also built for service on rack-operated tracks, one of which was built for the Transandine Railway connecting Chile on the west with the Argentine. The line reaches a height of 10,500 ft. above sea level, and on the heaviest section is provided with a triple rack. The leading bogie of the above engine serves for adhesion only, but the rear 6-wheel bogie carries the rack engine with its two pinion shafts.

A further example of the Kitson-Meyer rack engine was a design in which the leading bogie carried adhesion and rack engines, the former having cylinders 16½ in. in diameter × 19 in. stroke. Slightly forward of these and superimposed were the cylinders, 13 in. diameter × 14 in. stroke, which drove the rack pinion shaft. The rear bogie carried a pair of rack pinion shafts powered by 18 in. diameter cylinders with a stroke of 19 in.

Shay Articulated Engine

Another type which has given good service on forest and mining railways is the Shay articulated engine. Not only are the tracks for these lines very roughly laid, but curves and steep gradients abound. Tractive power was developed from the drive of a single 3-cylinder vertical engine, with cylinders 17 in. diameter × 18 in. stroke, which is transmitted via its crankshaft to the main longitudinal shaft, and then through bevel gears to the road wheels. The main shaft is in sections, each bogie having its own length mounted in suitable bearings. All sections are connected by flexible couplings which allow the bogies to curve and to ride independently of the superstructure.

The total weight of this engine, 154 short tons, is available for adhesion, and the maximum tractive power of 59,740 lb. gives the factor of adhesion of 5·16, which amply covers for any indifferent character of track. The locomotive is one of the largest of this type ever built, and although not suitable for normal railway duties where speed is required, has two excellent features, namely, the entire weight is available for adhesion, and the bogie wheel base alone determines the radius of curve which can be negotiated. The maximum speed of operation is around 20 m.p.h.

Mallet Locomotives

An articulated engine which originated in France, but has reached its peak of development in the U.S.A., is the well-known Mallet. Curiously enough, this has continued in most subsequent designs as a compound as originally built, and is excellently suited for the heavy class of freight service in which most of these engines are engaged. Speed has been subordinated to high tractive power in the majority of Mallet locomotives, though rare types have been built for fast work, and as they were not repeated, the usual inference is probably correct. The largest example of this locomotive ever built for the 4 ft. 8½ in. gauge was one built for the Union Pacific Railroad, and is a simple engine with a maximum horsepower of 7,000. Leading dimensions for this engine are:—

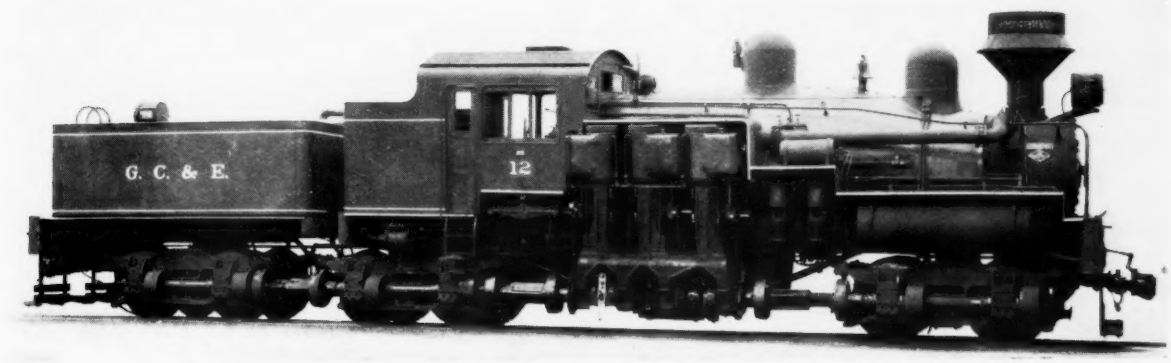
Cylinders (4)	23½ in. dia. × 32 in. stroke
Coupled wheels	5 ft. 8 in. dia.
Boiler pressure	300 lb. per sq. in.
Total evaporative heating surface	5,889 sq. ft.
Superheating heating surface	2,466 sq. ft.
Grate area	150·3 sq. ft.
Tractive power (max.)	135,375 lb.
Adhesive weight	540,000 lb.
Total engine weight	762,000 lb.
Total tender weight	342,200 lb.

Another fine example of Mallet engine, built by the North British Locomotive Co. Ltd. for the South African Railways, is a notable design of heavy hauling compound engine for running on a relatively light rail (80 lb.), the weight in full working order being 180 tons and the tractive power 54,000 lb. The machinery for the engine is clearly shown in the accompanying illustrations, from which the boiler and cab have been removed, and the two end views, the first of these showing the rear end of the front engine unit, and the second the leading end of the rear unit.

Articulated Pivot

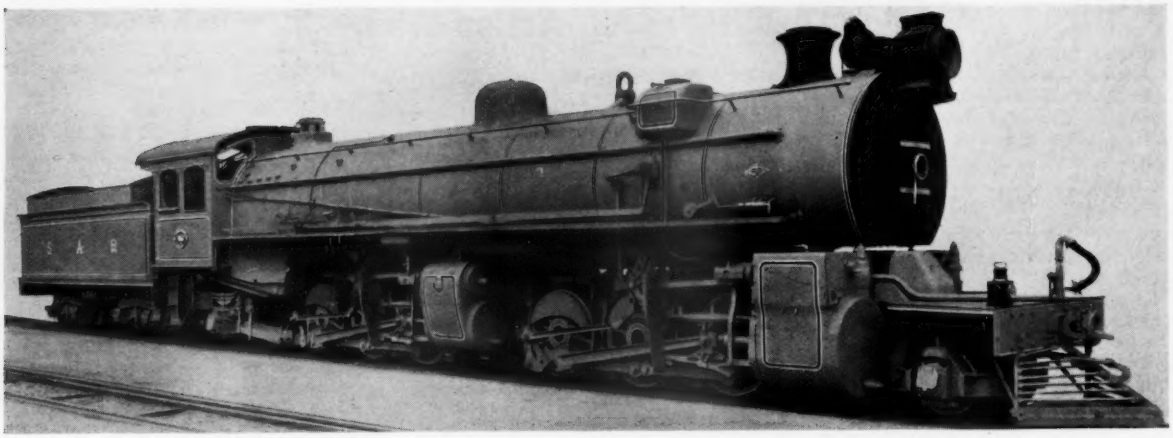
The end views also show the articulated pivot casting and the eyes in the bar frame for receiving the sling bolts which enable the front unit to carry a portion of the overhanging load of the rear engine. In later designs the articulated member has been changed to what is virtually a very large universal joint which allows vertical displacement relative to the two frames, but maintains them at a fixed horizontal distance, and provides for change in angularity of the two frame centres when curving.

In the Mallet engine the boiler and cab are mounted rigidly on the frame which, in the compound locomotives, houses the high pressure cylinders, the front driving bogie being pivoted to the leading end of this frame at a point ahead of the mid-centre between the inner axles of the two groups; this pivotal connection serves to guide the rear engine through the curves. With the boiler secured to the rear engine framing it follows that the centre line of the smokebox and boiler is more or less tangential to the curve, and the forward end therefore swings outward as the curve is entered. A suitable arrangement of cross-slide is provided to carry the overhanging structure, spring control recentring the mass after the curve is passed.



Three-truck Shay geared locomotive built by the Lima Locomotive Works Inc.

* Part 1 appeared in our issue of June 25



South African Railways Mallet built by the North British Locomotive Co. Ltd.

Alternative designs of Mallet are the Henderson Triplex, an engine having three sets of driving wheels, one being driven by high-pressure steam which is then exhausted to the remaining four cylinders, two for each of the other groups. As a locomotive the Mallet compound, even with superheated steam, was found to be sluggish, and many later units have been built as simple engines and have shown a definite improvement in running, besides proving lower in manufacturing costs, since cylinders, rods and valve gear were then duplicated throughout.

Beyer-Garratt Design

It is possibly no exaggeration to state that the finest all-round design of articulated engine in service today is the Beyer-Garratt, since this locomotive is equally capable of design as a heavy fast passenger unit, as well as for the haulage of freight or minerals. Perhaps the Rhodesia Railways 4-6-4-+ 4-6-4 class may be regarded as a typical unit of the Beyer-Garratt design, and affords an excellent impression of what may be accomplished for narrow-gauge operation, as this engine is for the 3 ft. 6 in. gauge. With a tractive effort of 47,500 lb. at 85 per cent boiler pressure, and a total load on the driving axles of approximately 87 tons, the factor of adhesion comes out at just over 4·0. The coupled wheels are 4 ft. 9 in. dia. and are capable of a good turn of speed, this being the usual size of wheel for service on most metre and 3 ft. 6 in. lines.

In the Beyer-Garratt locomotive the boiler and cab are supported on a main frame structure which carries a pivot at each end, the latter fitting into a socket casting on the driving engine frame located at the correct point in relation to the distribution of weight at the rail. Water is carried in the tanks provided at each end—with fuel above the rear tank—these being secured to the driving bogie frames. As fuel and water are consumed the weight at the rail—and, therefore, the adhesion factor—diminishes slightly, but slipping is rare with this type. A fact of much comment concerns the manner in which the front and rear engines keep "in step," giving a total of four exhaust beats per revolution uniformly (for a 4-cylinder engine) instead of eight at irregular intervals as one would naturally expect.

Firebox Volume

The situation of the boiler is ideal from the designer's point of view, the barrel being free from any restriction due to coupled wheel diameter as found in the normal type locomotive, and therefore having the theoretical ideal of tube length with the number of flues and tubes required by the evaporative demand. Similarly the firebox may be of good square proportions with excellent ratios as regards firebox volume, grate and free flue areas. Steaming is very free, and where the fuel is hand-fired the task is relatively easy by comparison with the normal locomotive.

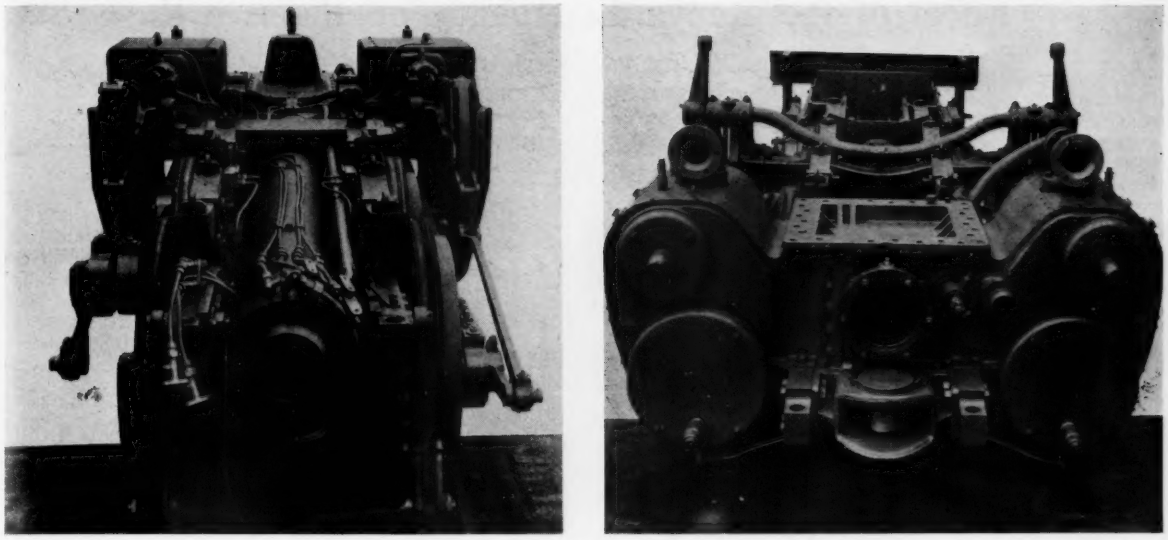
A further advantage possessed by this type of engine lies in the fact that on a curve the centre line of the superstructure forms a chord of the arc, and its centre of gravity acts favourably to the whole unit holding the track, with no overhanging ends of the superstructure. The articulation of the Mallet is adverse to running at speed, since the pull on the two units of this engine through the pivoting link tends to increase the side pressure on the flanges.

Freedom of Movement

The design of the bogie pivots for articulated engines is an important job, as these members have a marked effect on the easy curving of the locomotive. The objective to be aimed at is to secure complete freedom of movement under all conditions of curving, the worst of these occurring on sharp reverse curves where the leading and trailing engine bogies are inclined, by superelevation of the rails, in opposite directions. The shape of the pivot faces, plus the control provided against rolling and pitching, are important factors in the quality of riding on straight and curved tracks.

In all articulated engines in which

The Mallet engine with the boiler removed showing the accessibility of engine components

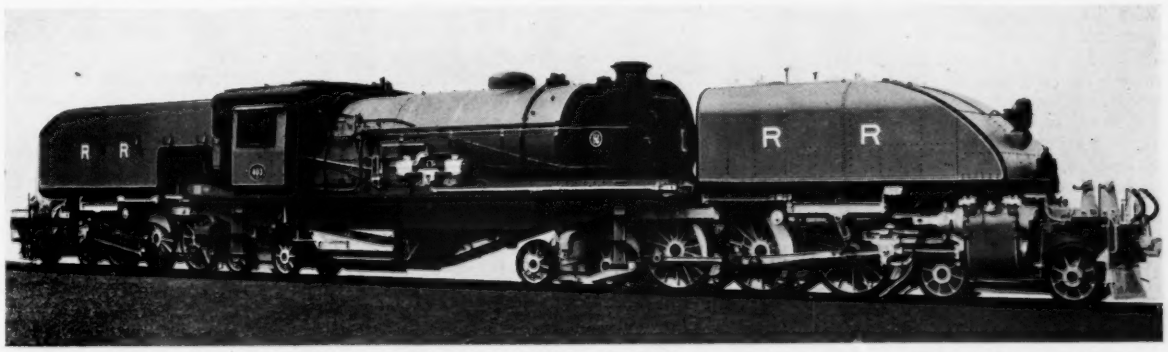


South African Railways Mallet locomotive showing (left) the method of lubrication of the rear end of the leading bogie and (right) leading end of the rear engine

freedom of movement about the centre pivot is permitted, flexibility must be provided in steam and exhaust pipe lengths, and this involves ball joints at vital points in the two pipe lines. Little trouble is experienced in this sphere in modern design, providing lubrication is properly maintained of those surfaces which are subject to relative movement. Another section affected by the flexibility afforded the driving units is the control from the cab of the valve gear reversing shafts on the bogie structures; this is accomplished by providing intermediate shafts at each pivot having a lever on the mid-centre and a connecting link, with universal jointed ends, between this point and the lever at the centre of the shaft on the bogie.

A modified type of articulated locomotive is that in which a booster engine is built in as part of the trailing truck, but this unit differs from the engine bogie of, say, a Beyer-Garratt in that the booster is only provided for occasional use, viz., as an aid to the main engine on a steep grade with a heavy load, when starting a train from rest under difficult conditions, or, under congested traffic situations, for improving the acceleration factor of the main engine. The addition of a booster involves flexibility in so far as steam and exhaust pipe lines are concerned, but this unit has given very good service in many spheres, notwithstanding the awkward situation in which it works, whether this be examined from the maintenance viewpoint or in relation to the heat and dirt issuing from ashpan and track.

(*Concluded*)



Beyer-Garratt 4-6-4 + 4-6-4 *type locomotive built for the Rhodesia Railways by Beyer, Peacock & Co. Ltd.*

REPORT ON GLASGOW UNDERGROUND.—In a report to Glasgow Corporation, Sir William Halcrow & Partners express the view that it would not be practical or economic to extend or enlarge the 4 ft. gauge Glasgow underground railway. It should continue as an isolated line, but passenger interchange might be arranged at suitable points on any future sub-surface line.

PORTABLE HYDRAULICALLY - OPERATED CRANE.—A portable, hydraulically-operated crane, known as the Staffa 2, has been designed by Chamberlain Industries, Limited. The pivoting jib and supporting column are mounted on a fabricated steel base which has two tubular legs in which are mounted 7 in. dia. travelling wheels. Two 7 in. dia. wheels are mounted at the rear of the base, and located in a rotating assembly which is steered by means of the towing handle, depression of which raises the rear of the crane, making it mobile on its wheels. Lifting is effected by means of a hydraulic ram which pivots the jib, and which is powered by a hand-operated pump. The pumping unit is a Staffa DUO two-stage hand pump. The maximum lifting capacity of the crane is 5,000 lb. and the total lift of the hook is six feet.

SCOTTISH REGION ARRANGEMENTS FOR LUGGAGE IN ADVANCE.—In connection with the Glasgow Fair Holidays and on other peak traffic dates this summer, special baggage trains are being run by British Railways, Scottish Region, to relieve the ordinary passenger train services; during the season a total of 145 such trains is being run. Many of these trains will call at local and suburban stations in and around Glasgow, where baggage will be loaded into vans travelling direct to holiday destinations such as Gourock (for the Clyde Coast resorts), Ayr, Oban, and Aberdeen. Similar arrangements apply in the return direction.

XUM

Effect of the Kenya Emergency on the E.A.R.

Dislocation of services, and anti-sabotage measures

Quasi-Arc plant being used in welding track to deter would-be saboteurs

THE first repercussions of the Kenya Emergency, so far as the East African Railways were concerned, were felt in the extensive movement of Kikuyus returning to their reserve. In the early stages, these movements were unco-ordinated and frequently conflicting. Apart from the consequent crowding of passenger trains, a heavy demand also developed for goods vehicles to convey baggage, household effects and even the crops of the evacuees. The arrival of this traffic at the stations serving the Kikuyu reserves, caused acute congestion and heavy delays to wagons because of difficulty in making contact with the consignees. These effects were particularly unwelcome in the early part of 1953 when all resources of the railway were required for the export of crops. Subsequently, the movement of evacuees was co-ordinated and organised and, later in the year, it fell away altogether.

Some of these Kikuyus were evacuated from the Northern Province of Tanganyika and, after a decision of the Tanganyika Government early in 1954, the rest of that tribe remaining in Tanganyika, approximately 8,000 persons, was compulsorily evacuated to special camps at Handeni and Urambo. For the move of the tribe to Urambo, special train working arrangements were necessary on the Tanganyika Central Line.

The conduct of operations against the Mau Mau gangs and the introduction of British troops led to demands for troop movements by rail and also the transport of considerable quantities of military stores and equipment. Another commitment was the transport of leave parties to and from Mombasa.

Difficulties in Administration

The existence of the Emergency gave rise to considerable difficulties in staff administration. In the interests of security, numerous restrictions were placed on the movement of members of the Kikuyu tribe and these applied equally to railway employees. It was necessary also to "screen" railway staff working in some sections. The accumulative effect of these measures unsettled the staff and interfered severely with normal staff management.

Drastic Precautions

The possibility of sabotage has always had to be taken into account and precautionary measures were taken from the start of the Emergency. It was not until early this year that the incidence and type of sabotage enforced the introduction of drastic precautionary measures, one the avoidance of running of passenger trains in the affected areas during darkness. Extensive alterations to the working timetable were called for, but were put into effect within seven days.

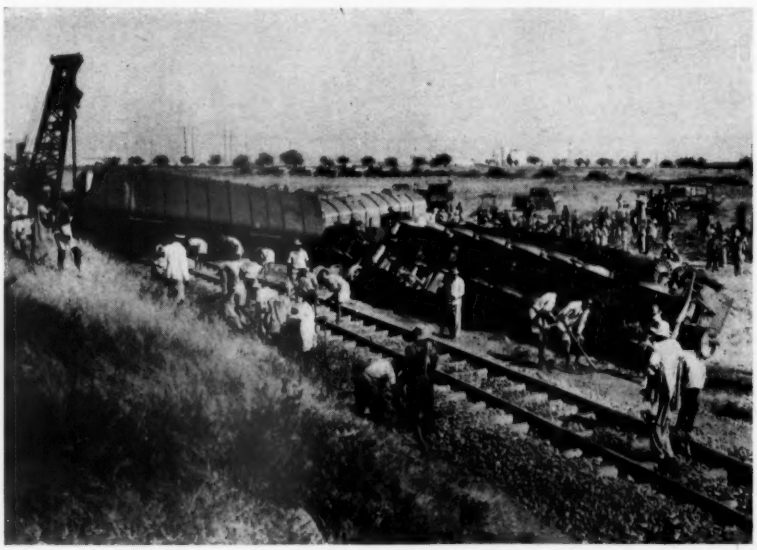
After the derailment of a main line train near Nairobi on February 6, caused by the removal of a rail from the outside leg of the curve, steps were taken to weld track so that it could not be taken to pieces. This will make track maintenance more onerous and expensive, but in the interests of the public safety and railway operating it is necessary.

Railcar Patrols

A system of patrolling railcars has also been introduced. There are two main types of railcar in use—those of normal pattern which have been called in from routine work in outlying districts and another type adapted from 5-cwt. road vans in railway workshops to the requirements of the military authorities.

The existing road wheels have been modified to run on railway lines and the roof and sides of the vans have been replaced by an open-sided structure which gives a good all-round view of the surrounding country. These cars, with their volunteer railway European staff crews, escorts and African drivers, patrol vulnerable areas at night between the goods trains which continue to run during the hours of darkness, though on a slightly reduced schedule. Portable VHF wireless equipment allows the railcars to be in direct contact with Control at Railway Headquarters in Nairobi.

During the last few months, these emergency measures have often put the railways in the invidious position of being unable to provide the service to the



Derailment caused by the removal of a rail; this accident led to the decision to weld all track

Patrol car converted at Nairobi Workshops from a 5-cwt. road van

public that they wish. It is all the more unfortunate that they should have come at a time when the East African Railways Administration believed there would be an easing of the tight traffic situation much in evidence in recent years.

The restrictions and alterations to the timetable have undoubtedly affected the capacity of the services, and transport demands in connection with the Emergency itself have had to be met out of this restricted capacity. There has been an adverse effect on passenger receipts and the reduction in train services is also making its effect felt on freight revenue.

It is envisaged that the increasing demands of the Emergency on locomotives, coaches and wagons will seriously affect the clearing of imports from Kilindini, with consequent delays in off-loading shipping, and it is feared that once again ships may have to wait for up to six weeks before being able to berth at Mombasa.

Heavy-Duty Fork-Lift Truck

Diesel-operated and designed with a maximum capacity of 7,000 lb.

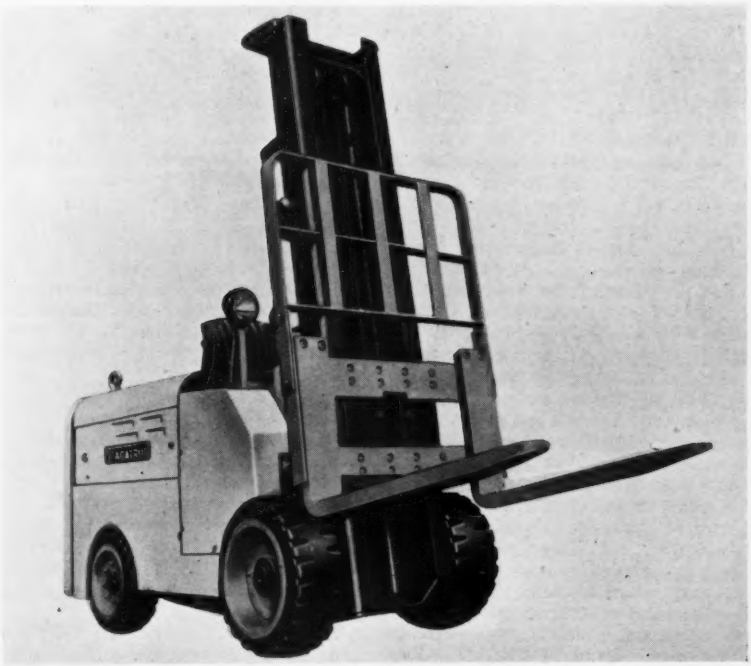
A DIESEL-OPERATED heavy-duty fork-lift truck, model 60-DH Stacatruc, has been added to the range of Stacatruc materials handling equipment constructed by I.T.D. Limited. This truck has a maximum capacity of 7,000 lb. and is designed to operate in restricted spaces. Models in 60-DH range are available with lift heights of 6·9, 12, and 14 ft. In addition, up to two three-ton trailers can be handled with ease, so that with the load on the forks, the equipment would provide a total load-carrying capacity of nine tons.

Split-Chassis Construction

A feature of the design is the split-chassis construction which makes all internal working parts readily accessible for maintenance and servicing. Further features include a compensated, rear steering axle, together with a 14-in. clutch. Lockheed hydraulics are fitted, and the mast assembly is of robust construction; oversize tyres are fitted.

The truck is powered by a Perkins P-4, four-cylinder engine. High-pressure forced lubrication is provided, and an oil bath air-cleaner, with a washable element, cleans the intake air to the engine. Fuel is supplied by a fuel pump of the C.A.V. type to the atomisers, which are on the top of the cylinder head.

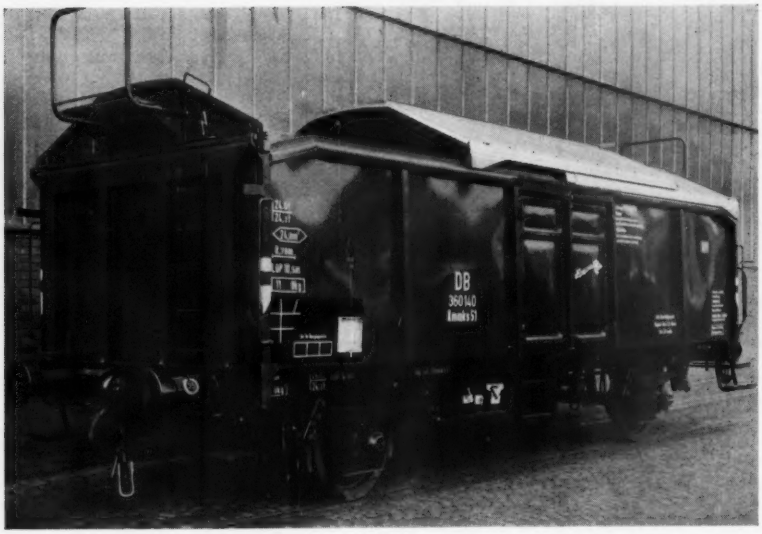
The engine, clutch, gearbox and drive axle, are assembled as a complete unit, the drive axle being bolted directly to the chassis; the engine end is suspended on two rubber mountings. The exhaust silencer has, it is stated, been specially designed to reduce fire risks. Responsive steering, with a small turning circle, make for extreme manœuvrability in confined spaces.



New Stacatruc diesel-powered fork-lift truck, model 60-DH, of 7,000 lb. capacity

Covered Vans with Sliding Roofs

German design with crane loading through light alloy sliding doors



One aluminium roof door open on a German Kmmks 24-ton covered wagon

COVERED freight wagons with sliding roofs and with large side doors to facilitate rapid loading and unloading of either bulk loads or packages have been a feature of postwar rolling stock in Germany; and since 1951 two types in particular have been developed by the Siegener Eisenbahnbedarf A.G. for the German Federal Railway. They are the four-wheel Kmmks51 and the double-bogie KKfk47 models.

The main solebars of the four-wheel type are of open box section made of pressings in copper-bearing steel with an ultimate tensile strength of 23-24 tons per sq. in., and the underframe is well stiffened by strong corner bracings taking the place of the more usual diagonals. Some of these wagons are provided with hand screw brakes at one end, in which case a mass-produced brake end platform and housing, 20 in. long and of pressed and welded steel 1·5 mm. thick, is attached to the buffer beam, the underframe remaining the same.

Side panel plates with steel pillars 3 mm. thick and of 32-ton steel are prefabricated and then welded to the underframe, the lower parts of the pillars being bent in towards the solebars and welded to them. To maintain the shape and exact spacing of the roof guides, the side panels are connected to a crown bar arranged above the side door centre, and this crown bar also comprises the roof locking device and protects the sliding portion of the roof, when open, against damage by cranes or swinging loads. Side doors are of the swing type, of 3 mm. steel.

The sliding portion of the roof is in two sections, of aluminium-manganese-silicon alloy to give light weight and ease of operation, and these sections are arranged to give as large an opening as possible, the maximum being 12 ft. 10 in. in length, and allows the loading of goods fully 50 per cent of the wagon body length. The roof cover sheets are spot welded and riveted to cross beams and ribs, and the operating mechanism for the roof doors is mounted on the ridge of the roof.

Principal dimensions of these four-wheel vans are: 39·3 in. wheels, 17 ft. 9 in. wheelbase, 28 ft. 9 in. length over headstocks, 34 ft. 5 in. length over buffers when a braking cabin is carried, 9 ft. 1 in. inside body width, 11 ft. 6 in. roof height, cubic contents of body 1,735 cub. ft., swing door opening in each side 5 ft. 11 in. long by 4 ft. 10 in. high, empty weight 11·5 tons, maximum loading capacity 25 to 27 tons.

The floor is of tongued and grooved softwood boards. Continuous drawgear and ring-spring buffers of SEAG pattern are fitted. Braking is of the Hildebrand-Knorr Hikp type, with load change-over feature, and also with change-over from passenger to freight braking force. There are two brake shoes per wheel. Maximum permissible speed out on the line is 62 m.p.h.

Conversion of Existing Wagons

As more and more demand arose for covered freight wagons which could be loaded and unloaded by cranes, the German Federal Railway decided to extend the principle of the light alloy sliding roof doors and large swing side doors. The Siegener Eisenbahnbedarf accordingly received an initial contract to convert nine double-bogie four-axle covered wagons built during the war years, and to obtain an open roof space at least 19 ft. in length. This resulted in the general-purpose KKfk covered wagons, in which the body length is 41 ft. 8 in., the body width 9 ft. 1 in., and the cubic capacity about 2,500 cub. ft. These wagons weigh 21½ tons empty and have a maximum rated carrying capacity of 56 tons. The Hildebrand-Knorr air brake has the same features as that on the four-wheel wagons; but the wheels are 35½ in. dia. and the axles run in roller bearings. Bogie wheelbase is 6 ft. 6¼ in. and bogie pivots are pitched at 29 ft. 3 in.

The sliding roof door sections cover practically the whole roof area, enabling half the floor area to be uncovered at one time; but the side doors are no bigger than those of the two-axle Kmmks wagons. But a new feature is found in the double-bogie KKfk vans, in the shape of large double end doors, permitting end loading and unloading. Also, on each side there are three aluminium-alloy drop shutters, mainly for ventilation.

POTTERS BAR STATION RECONSTRUCTION.—Work on the widening of the line and the reconstruction of the station at Potters Bar has progressed to a point which enabled the platforms serving the new up and down slow roads to be brought into use on June 27. For the time being all trains will be routed over the new tracks to enable the Civil Engineer to take possession of the up and down main lines through the station for the excavation of the remainder of the subway and the erection of the new prestressed concrete platform canopies. The present temporary booking office and staff accommodation are to remain in use until the station reconstruction is completed, when they will be demolished to permit completion of the reduction in the level of the approach road. The temporary footbridge which provided access between platforms has been replaced by a timber gangway at platform level. This is possible as the up and down lines through the station will not be in use except for the movement of engineers stores and materials. There is a fixed gang-plank bridge at the south end of the station and another, more conveniently situated, for use between the hours of 7 a.m. and 9 a.m. The contract for the erection of the new station buildings on the up side has been let and work on these is to start almost immediately. On July 18, single line working will be introduced for the purpose of putting in the new Darkes Lane bridge girders to carry the up and down main lines. The contract for lowering the road under this bridge has been let and this work is to proceed at an early date under arrangements made by the Middlesex County Council. Alternative car-parking facilities at the station, on the up side of the line, have been provided for use when occupation is taken by the Civil Engineer of the approach road on the down side. An illustrated article on the work in progress at Potters Bar appeared in our issue of January 1.

RAILWAY NEWS SECTION

PERSONAL

Mr. M. J. Hayes, Staff Relations Officer of Coras Iompair Eireann since 1947, has been appointed Secretary of the system. He succeeds Mr. H. G. Boardman, whose retirement was recorded in our May 7 issue.

Mr. T. H. Grey, a former General Secretary of the Rhodesia Railways Workers' Union, has been appointed Acting Chairman of the Rhodesia Railways Board.

Mr. L. W. Cox, Assistant (Freight Services), Operating Superintendent's Department, London Midland Region, British Railways, has been appointed Divisional Operating Superintendent, Derby.

Mr. Harold S. Granger, Division Freight Agent, Saskatoon, Sask, Canadian National Railways, has been appointed General Freight Agent, Winnipeg, Man., succeeding Mr. Robert M. Milliken, who has retired.

Mr. F. N. McKenzie, Passenger Traffic Manager, Montreal, Canadian National Railways, has been appointed Passenger Traffic Manager, Western Region, succeeding Mr. W. G. Connolly, who has retired.

Mr. E. W. Fordred, Superintendent, Investigation & Research, General Freight Traffic Manager of the system at Montreal.

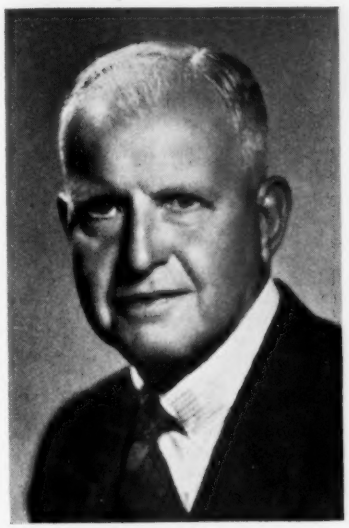
Eastern railways, was dedicated at Ratho Parish Church on Sunday, June 27.

MINISTRY OF TRANSPORT & CIVIL AVIATION

Mr. J. E. M. Beale has been appointed to be Assistant Private Secretary to Mr. Alan Lennox-Boyd, Minister of Transport & Civil Aviation, with effect from June 17.

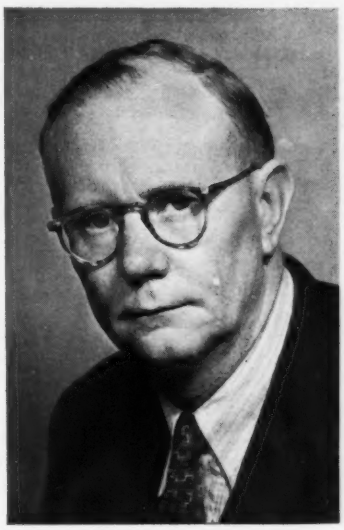
Mr. G. F. Stedman, C.B., M.C., has been appointed a Deputy Secretary upon the retirement of Sir Norman Guttery, K.B.E., C.B., on September 30, 1954.

Mr. H. C. Adams, M.C., M.A., M.I.C.E., has been appointed an Assistant Chief Engineer. He succeeds Mr. C. S. Chettoe, B.Sc. (Eng.)., M.I.C.E., who is retiring on September 16.



Mr. Stuart Ainsworth

Manager & Engineer, Guaqui-La Paz Railway, awarded the O.B.E.



Mr. E. W. Fordred

Appointed Relief System Manager, South African Railways

Mr. B. T. Beken

Appointed British Railways General Agent for Belgium, in Brussels

Mr. Stuart Ainsworth, A.M.I.E.E., A.M.I.Mech.E., Manager & Engineer, Guaqui-La Paz Railway, Bolivia, who, as recorded in our June 18 issue, has been awarded the O.B.E. in the recent Birthday Honours, began his career with the Great Central Railway and served throughout the 1914-18 war when, with the Naval Divisional Engineers, he took part in the initial landings on the Gallipoli Peninsula and in the final evacuation, for which he was mentioned in Dispatches. Later, in France, he received the D.C.M. for action in Arras. Joining the Peruvian Corporation in 1920, he was appointed Manager & Engineer of the Guaqui Railway in Bolivia in 1935, a position which he still occupies.

We regret to record the death, in Quebec, of Mr. J. M. R. Fairbairn, D.Sc., formerly Chief Engineer, Canadian Pacific Railway. Mr. Fairbairn, who served the C.P.R. for 37 years, retired in 1938. He was a Past President of the Engineering Institute of Canada and of the American Railway Engineering Association.

Mr. John Fullerton, whose appointment as Freight Traffic Manager, Winnipeg, Canadian Pacific Railway, was recorded in our February 19 issue, together with an illustrated biography, has been appointed Manager's Office, Johannesburg, South African Railways, who has been appointed Relief System Manager, Headquarters, Johannesburg, joined the railway service as a junior clerk at Ladybrand in 1914. After serving at various stations in the Orange Free State and the Transvaal he was transferred to the commercial branch of headquarters in 1924, where he progressed to the position of Superintendent (Commercial) in 1947. The many years he spent in the commercial sphere brought him into close association with the many branches arising out of the Administration's operation of railways, harbours, grain elevators and airways, so much so that he was appointed to the position of Superintendent (Investigation & Research) at Headquarters on August 1, 1952, with a clerical staff to conduct research and investigation into such matters as simplified accounting, traffic handling, and transhipworking. He has also represented the Railway Administration at some of the subcommittee meetings of the International Air Transport Association, which have taken place in the United States of America and Europe.

A memorial to the late Mr. William Whitelaw, LL.D., formerly Chairman of the Highland Railway, and later of the North British and the London & North

Mr. B. T. Beken, who, as recorded in our June 25 issue, has been appointed British Railways General Agent for Belgium, in Brussels, with effect from April 1, 1954, entered the service of the Southern Railway Company in 1925 at Victoria. After a period of training there and at Holborn Viaduct, he was transferred to the Continental Department at Victoria in 1933. He was a member of the staff of the British Railways Travel Bureau on board *R.M.S. Queen Mary* from the time of her maiden voyage in May, 1936, until the end of 1937, when he returned to the Continental Department of the Southern Railway. He joined the Royal Air Force in 1941 and served in the Middle East, the United Kingdom, and France. In 1946, he was appointed to be the British Railways' representative at the International Union of Railways Headquarters in Paris. In 1948, Mr. Beken returned to London and was appointed to the staff of the Chief Officer (Continental) at Railway Executive Headquarters, where he remained until taking up his new appointment in Brussels.

Mr. Albert G. Kann, General Superintendent of Motive Power, Illinois Central Railroad, has retired because of ill-health. He has been succeeded by Mr. John A. Welsch.

Mr. A. E. Grimsdale

Appointed a Director of Metropolitan-Vickers Electrical Co. Ltd.

Mr. A. E. Grimsdale, B.Sc.(Eng.), Special Assistant, Sales Management, Metropolitan-Vickers Electrical Co. Ltd., who, as recorded in our June 25 issue, has been appointed a Director of Metropolitan-Vickers Electrical Export Co. Ltd., took his degree from Brighton Technical College and joined Metropolitan-Vickers as a college apprentice in 1922. After spending three years as technical engineer in the company's Sydney office in Australia, and a further two years in the Traction Control Department at Trafford Park, he transferred to the Traction Sales Department in 1932. From 1941 to 1945 he was Assistant to the Works Manager at the company's Sheffield Works, being concerned with the wartime production of rotating electrical machines for service contracts. At the end of the war he became Deputy Sales Manager, Traction Department, and, in 1946, was appointed Manager, Traction Sales. He became Special Assistant, Sales Management, on January 1, 1953.

Mr. Ralph Johnston, Assistant to the District Operating Superintendent, York, has been appointed Assistant District Operating Superintendent, Sunderland.

Mr. Phillip H. Galloway, Trainmaster of the Illinois Central at Freeport, Ill., will become Manager of Mail, Baggage & Express as from June 16.

Mr. V. J. Chalwin, Chairman & Managing Director of Brush Electrical (Australia) Pty. Ltd., and British Oil Engines (Australasia) Pty. Ltd., the marketing subsidiaries of the Brush Group in Australia, has resigned from those positions. Mr. Chalwin has been with the Brush Group in various appointments for the past 11 years.

Mr. A. P. Quarrell, A.M.I.Mech.E., A.M.I.Mar.E., will succeed Mr. Chalwin, and has been appointed Chairman of British Oil Engines (Australasia) Pty. Ltd., and Managing Director of Brush Electrical (Australia) Pty. Ltd. He was Managing Director of Associated British Oil Engines (Export) Limited, from 1945 to 1949.

Mr. J. E. Costell, who has been associated with British Oil Engines (Australasia) Pty. Ltd., for the past 23 years, becomes Managing Director of that company.

Mr. D. J. Ault, Secretary of Tangyes Limited, has been appointed to the board of the company.

Mr. T. E. Goldup, M.I.E.E., a Director of Mullard Limited, has been awarded the C.B.E. in the Birthday Honours List.

Mr. Ian A. Marriott has been elected to the board of Wellworthy Piston Rings Limited, a subsidiary of Associated Engineering Holdings.

Mr. George F. Carr, who has been Dunlopillo Sales Manager to the upholstery trade since 1948, succeeds Mr. Harral as General Sales Manager.

Mr. F. Grimshaw, General Works Engineer, Leyland Motors Limited, has been awarded the O.B.E. in the Birthday Honours List.

Mr. R. A. Beckett has been appointed Managing Director and Deputy Chairman of Beckett, Laycock & Watkinson Limited. Mr. J. E. Beckett, who has combined the positions of Chairman and Managing Director, remains Chairman.

Mr. A. H. Lawson has joined the staff of Metropolitan-Vickers Electrical Co. Ltd. at Trafford Park as Sales Engineer, following the transfer of the resistance welding business of British Insulated Callender's Cables Limited to that company.

Sir George Briggs, A.M.I.Mech.E., a director of Tube Investments Limited and a member of the Royal Ordnance Factories Board, has accepted an invitation to become a director of the Brush Group Limited.

Mr. B. F. Slater, G.I.Mech.E. G.I.Mar.E., formerly Sales Engineer for Borg & Beck Co. Ltd., has recently joined J. & H. McLaren Limited, in a similar capacity and will represent the company in the West of England.

Mr. G. D. L. Goslett, Sales Manager of the Ruberoid Co. Ltd., Mr. C. B. Innes, Accountant, and Mr. D. L. Irwin, General Works Manager, have been elected to the board of the company, subject to confirmation at the next annual meeting.

Mr. L. Harral, a pioneer of the latex foam industry, has relinquished his post as General Sales Manager of the Dunlopillo division of the Dunlop Rubber Co. Ltd. He remains a local director of the division, and his wide experience will continue to be available to the Company.

The British Electric Traction Co. Ltd. announces that Mr. A. F. R. Carling, at present General Manager of Southdown Motor Services Limited, has been appointed to the Executive Staff of the company. He will take up his new duties on November 1 next and will be appointed to the Boards of a number of the associated companies.

The Chancellor of the Exchequer has reappointed Sir John Morison as Chairman of the Iron & Steel Holding & Realisation Agency, and has renewed the appointments, as members of the agency, of Mr. A. C. Bull, Sir Thomas Chadwick, and Mr. C. P. L. Whishaw, all for a further year ending June 9, 1955. Sir John Green's term of membership of the agency continues until September 30, 1955. Following an understanding when he was originally appointed, the membership of Sir Oliver Franks has been extended until July 31, 1954.

Dr. Manfred Rabes

Appointed President, Kassel Division German Federal Railway

Dr. Jur. Manfred Rabes, Referent and Secretary to the Executive Board of the German Federal Railway, who has been appointed President of the Kassel divisional management of the system, was born on April 16, 1898, in Thuringia, Germany. He was educated at Altenburg Grammar School, and served in the German Army during the 1914-18 war. He obtained his doctor's degree in jurisprudence in 1926. He served in the Thuringia legal state service, and, after six months, he joined the German State Railway Company. After a brief period at Essen he transferred to the Breslau divisional management in 1928, where he became Reichsbahnrat. From 1930 to 1933 Dr. Rabes served in the Berlin head office of the Reichsbahn. He subsequently became Chief of a Berlin local commercial railway administrative office and a senior official in the Cologne divisional management. In 1937 he was promoted to be Oberreichsbahnrat. Early in 1941 he was again called to Berlin and was posted to the Ministry of Transport as Referent. His appointment to be Ministerialrat followed in 1942, after which he became President of the Erfurt divisional management. Dr. Rabes remained in this position until 1945. He resumed his railway service in 1951, becoming Referent & Secretary to the Executive Board of the German Federal Railway, in the Offenbach and Frankfurt head office in 1952.

Mr. J. M. S. Risk, Ph.D., C.A., F.C.W.A., A.C.I.S., has been appointed Controller of Accounts of The Brush Group, Ltd., and a Director of Associated British Oil Engines, Ltd. He will be taking up his duties on July 1. Mr. Risk succeeds Mr. Maurice Tattersfield, A.C.A., F.C.C.S., who is now Deputy Managing Director of Brush Electrical Engineering Co., Ltd., Loughborough.

Mr. F. R. Livock, B.Sc. (Eng.), M.I.E.E., A.M.I.Mech.E., has been appointed Sales Director to Metal Industries (Electrical Division) Limited, which includes Brookhirst Switchgear Limited, Igranic Electric Co. Ltd., and Cantie Switches Limited. Mr. N. V. Baldwin, M.I.E.E., has been appointed Managing Director of the Brookhirst Igranic S.A. (Pty.) Limited, the South

African subsidiary of the group. He has been connected with the Igranic Electric Co. Ltd. for over 40 years.

Mr. Donald B. Lourie, President of the Quaker Oats Company, has been appointed a member of the board of the Illinois Central Railroad.

Sir Arthur Whitaker, K.C.B., formerly Civil Engineer-in-Chief of the Admiralty, has joined the firm of Livesey & Henderson as a partner. The style of the firm remains unchanged.

Mr. R. Willis and Mr. P. E. H. Wilde have been appointed Directors of the Sheffield Forge & Rolling Mills Co. Ltd. Mr. Willis is Works Director, and Mr. Wilde, Sales Director, of Darwins Limited, which recently acquired the Sheffield Forge & Rolling Mills Co. Ltd.

Mr. R. G. Hull, Manager of the Manchester sales office of the Northern Aluminium Co. Ltd., has retired after 27 years' service with that company. He is succeeded by Mr. D. A. Corbett-Thompson, formerly on the staff of the London sales office.

INSTITUTION OF PRODUCTION ENGINEERS

Sir Walter Puckey, who became President of the Institution of Production Engineers in 1953, has been elected to serve a second year in office.

Mr. G. Ronald Pryor, Vice-Chairman of the Institution for the past two years, now becomes Chairman of the Council.

Mr. H. G. Gregory has been elected Vice-Chairman.

TRANSPORT USERS CONSULTATIVE COMMITTEE

Appointment of Further Members

East Anglia Area

Representing Commerce and Industry:—Mr. R. V. Pohlman.

Representing Local Authorities:—Alderman P. J. Watts, J.P.; Councillor G. A. Earl; Councillor P. E. Taylor.

East Midland Area

Representing Local Authorities:—Alderman N. Gratton, J.P.; Alderman W. W. Williamson, M.B.E.; Councillor F. W. Holdich.

North Eastern Area

Representing Local Authorities:—Alderman D. Dawson, O.B.E.; Councillor H. D. Tesseyman.

South Western Area

The following have been appointed members of the Committee for the South Western Area until April 30, 1957:—

Chairman: Colonel Mark Whitwell, C.B.E., D.S.O., M.C., T.D.

Members: (Representing Agriculture) Messrs. B. R. Archer, J. Laity, R. L. Johnston. (Representing Commerce & Industry) Mr. J. Gourlay, Mr. P. M. Cole, Mrs. M. L. Lidington. (Representing Shipping) Councillor A. L. Duggan. (Representing Labour) Mr. W. H. Peacey, M.B.E., Mr. A. S. Dopson. (Representing Local Authorities) Alderman L. N. Punter, M.B.E. (Representing the British Transport Commission) Mr. C. E. Shaw, Mr. J. C. Dean.

Secretary: Mr. P. H. Sims.

The office of the Committee is at 10, Fairlawn Road, Montpelier, Bristol, 6.

Two members representing commerce & industry and three representing local authorities have yet to be appointed.

The following are further extracts from the Supplement dated Friday, June 4, 1954, to *The London Gazette* of Tuesday, June 1, 1954:—

The Queen has been graciously pleased to confer the award of the 2nd Clasp to the Army Emergency Reserve Decoration upon the following officers:—

Commands and Staff

Col. F. J. J. Prior, O.B.E., A.M.Inst.C.E. (65841).

Corps of Royal Engineers

Capt. (Hon. Maj.) S. M. Taylor (41089).

Royal Corps of Signals

Lt.-Col. (Hon. Col.) R. S. Smith, O.B.E., M.C., D.C.M. (34647). Retired.

The Queen has been graciously pleased to confer the award of the 1st Clasp to the Army Emergency Reserve Decoration upon the following officers:—

Commands and Staff

Col. F. J. J. Prior, O.B.E., A.M.Inst.C.E. (65841).

R.A.C.

Maj. H. C. Roberts (63391) (now S.S.R.C.).

Corps of Royal Engineers

Maj. T. V. Nicholson, O.B.E. (94841).

Capt. (Hon. Maj.) S. M. Taylor (41089).

Royal Corps of Signals

Lt.-Col. (Hon. Col.) R. S. Smith, O.B.E., M.C., D.C.M. (34647). Retired.

Maj. J. A. Cooper, B.Sc.(Eng.), A.M.I.E.E. (56118).

Maj. J. Reid, M.B.E. (53331). Retired.

The Queen has been graciously pleased to confer the award of the Army Emergency Reserve Decoration upon the following officers:—

Commands and Staff

Col. F. J. J. Prior, O.B.E., A.M.Inst.C.E. (65841).

Royal Regiment of Artillery

Capt. Sir Basil A. T. McFarland, Bt., C.B.E., A.D.C. (87307). Retired (Hon. Col. of a T.A. Unit).

Capt. (Hon. Maj.) J. C. Mitchell (89708).

Corps of Royal Engineers

Maj. (T/Lt.-Col.) D. A. Smith, M.C. (76388) (now Reg. Commn.).

Capt. (Hon. Maj.) J. E. Jones (87066). Retired.

Capt. (Hon. Maj.) H. J. King (89925).

Lt. (Hon. Capt.) N. E. Norman (86558).

Royal Corps of Signals

Lt.-Col. (Hon. Col.) R. S. Smith, O.B.E., M.C., D.C.M. (34647). Retired.

Capt. (Hon. Maj.) J. P. Cunliffe (72012).

Capt. W. A. Watson (71535).

The Queen has been graciously pleased to confer the award of the 1st Clasp to the Territorial Efficiency Decoration upon the following officer:—

A. & S.H.

Capt. R. Mackenzie (68339).

The Queen has been graciously pleased to confer the award of the Territorial Efficiency Decoration upon the following officers:—

Royal Regiment of Artillery

Maj. W. A. Robertson (150716).

Capt. F. E. Bryant (212657).

Capt. J. M. Elliott (172580).

Capt. (Hon. Maj.) D. A. Smith (62299).

Lt. R. J. Fitch (90220).

Corps of Royal Engineers

Capt. (Hon. Maj.) H. R. Hart (85027).

K.S.L.I.

Capt. W. P. Cox (182367).

A. & S.H.

Capt. R. Mackenzie (68339).

Intelligence Corps

Capt. J. R. Smith, M.M. (274358).

New Switchboard at Euston Station Reservation Bureau

Forty keyboards, made by the General Electric Co. Ltd., have been installed in the Seat & Sleeper Reservation Bureau at Euston Station, London Midland Region. This bureau handles inquiries telephoned from external sources as well as reservations made at the counter, and the new keyboards ensure that the inquiries are cleared promptly. The installation follows the restoration and re-arrangement of the Great Hall at Euston.

Operation and Layout

Charts carrying the reservations for each train are pigeon-holed in special racks, accessible to the clerks at the counter and the telephone personnel in the room beyond. Telephone requests for seat reservations are accepted only from London Midland Region stations, other London termini and recognised travel agencies.

The answering positions are divided into two independent suites, one dealing with seat bookings, and the other sleeping berth reservations. These suites each have 14 positions, each having a 20-line keyboard on each of which every in-coming call is signalled on an individual line lamp.

Particulars of a telephoned reservation are taken down by the operator on a standard form. She consults the train-booking charts to discover what accommodation is available, and makes an entry on the chart. She completes the telephone call by announcing that the reservation will be made, and makes a corresponding entry on the form.

Supervision

Each suite of positions is under a supervisor who co-ordinates the work, answers difficult queries, and sees that all records concerning his section are properly kept, and all telephoned reservations are despatched. The supervisor has a 20-line keyboard, on which each call to his suite of positions is signalled. He has also an indication both of busy lines and of the time taken to answer calls, as ten of the lines on his keyboard are equipped with red calling lamps which are relieved by green busy lamps when the call is answered. To handle any telephoned inquiry of any difficulty, the supervisor merely throws the "speak" key of the appropriate line.

The Seats Supervisor's position also includes a keyboard on which alarms are given when any of the mains, 6V. a.c. or 24V. d.c. supplies to the whole system are interrupted. The keyboard carries two audible alarm keys. When either key is thrown, a buzzer is switched into circuit with the calling lamps of the suite.

Two apparatus racks serving the "Seats" and "Sleepers" keyboard groups respectively are accommodated in the basement, each rack carrying the relay sets for 20 lines, a lamp transformer and the change-over equipment to cover mains supply failures. A 24-volt float-charged battery supplies power for relay operation, but under normal conditions all the calling and busy lamps are operated directly from the a.c. mains via transformers giving an output of six volts. Should the mains supply fail, the calling lamps are automatically connected to a 6-volt stand-by battery.

The telephone equipment was supplied by the G.E.C. to the requirements of British Railways (London Midland Region), Euston, whose staff carried out the installation.

Proposed Amendments to London Fares Scheme

B.T.C suggestions to implement Transport Tribunal decisions

The Transport Tribunal announced on June 10 that the additional annual revenue of £4,300,000 which the British Transport Commission hoped to raise under the B.T.C. Passenger Charges Scheme, 1954, should be limited to £3,600,000. At the close of the public hearing of the case for and against the scheme, Mr. Hubert Hull, President of the Tribunal, announced that if the Tribunal decided that the gap to be filled differed from the amount proposed by the Commission, the latter would be asked to put forward proposals to meet the situation.

These proposals have now been submitted to the Tribunal, and after objectors have had an opportunity of considering them and of putting forward any suggestions of their own, the hearing is to be resumed. Accounts of the previous proceedings were given in *The Railway Gazette* issues of May 28 to June 11 inclusive. The scheme was summarised in our issue of April 9.

Effect on British Railways

The memorandum addressed to the Transport Tribunal by the B.T.C. states that in approaching the problem of modifying the scheme the Commission has borne in mind that there must be preserved the existing degree of assimilation between the charges made by the London Transport Executive and those made in respect of the services provided on British Railways lines in the London Area, and also that, because of differences in traffic characteristics, alterations in different parts of the scales of maximum rates and fares will bear in greatly differing degrees upon the yield afforded on the one hand to London Transport and on the other hand to London lines. The Commission considers the financial position of the British Railways London lines, when taken in isolation to be unsatisfactory even under the scheme as submitted and that any changes which substantially reduce the yield to London lines would imperil the whole principle of assimilation. It has therefore sought for modifications which, while effecting the required result to London Transport, will not have an unreasonable effect upon the finances of British Railways London lines. This has proved to be impossible, and to counteract the effect on British Railways the Commission considers that there must be a variation in the proposed scale of season ticket rates.

Intermediate Fares Impracticable

The Tribunal asked the Commission to consider the introduction of a 3d. fare for three stages, but the Commission considers that, with alterations in other fares which would be necessary at the same time, the expected revenue would be reduced by at least £1,750,000. The Commission will submit another memorandum on this subject later, but in the present note they say that it would be impossible to have a 3d. fare for three stages without a 5d. fare for five stages, a 10d. fare for 11 stages, and a 1s. fare for 13 stages, and without corresponding alteration in London Transport railway fares.

The following modifications to the scheme are proposed:—

The scale for London Transport ordinary fares to be modified by making no increase in existing fares of 1s. or over; similarly, no increase in day return fares of 2s. and over on British Railways London lines. The early morning single fare for five and six miles to be reduced from 5d. to 4d., and early morning return fares for distances from five to 10 miles, inclusive, to be reduced by 1d. Over 10 miles, the fares remain as submitted. Season tickets to be modified so that they are based broadly on those approved under the 1952 scheme, with an increase of about 10 per cent.

The effect of this will be to reduce some season ticket rates for distances from two to seven miles, but to increase rates for distances over eight miles compared with the scheme as submitted, which proposed an increase of 2s. on all monthly seasons beyond one mile. Scales for weekly and three-monthly rates will be derived from the monthly rates by the present formula.

Compared with existing rates, this means that all season ticket rates for three miles and over will be raised on a scale corresponding with distance. The increase on monthly rates is 6d. at three miles, 2s. 6d. at ten miles, 5s. 3d. at 20 miles, and 7s. 9d. at 50 miles.

Overall Effect

Compared with the scheme as submitted, these modifications would reduce the yield from ordinary and day returns by £458,000 on London Transport and by £180,000 on British Railways London lines; early morning fares would yield £182,000 less on London Transport and £100,000 on London lines. Season tickets would yield £22,000 more on London Transport and £150,000 on London lines. The total yield for the London area would become £4,550,000, a reduction of £748,000 on the scheme as originally submitted.

The Tribunal will sit again on July 5 to continue the hearing of the application.

Institution of Civil Engineers' Conversazione

Exhibition of engineering models and scientific apparatus

The President, Mr. W. P. Shepherd-Barron, and the Council of the Institution of Civil Engineers held a conversazione at the Institution in Great George Street, London, S.W.1, on June 24.

Those present who accepted invitations included:—

The Belgian Ambassador, the Swiss Minister, Viscount Bruce of Melbourne, Viscount Waverley, Mr. Osbert Peake, Major the Hon. Gwilym Lloyd George, Sir Folliott Sandford, Sir Brian Robertson, Sir John Elliot, Sir Hilton Poynton, Sir George Beresford Stooke, Sir Walter Drummond, Sir George Seel, Sir Godfrey Ince, Sir George Burt, Mr. J. H. Wallace.

Among the many engineering models and specimens of scientific apparatus displayed at the conversazione were a number illustrating developments on British Railways and London Transport railways.

Rail Flaw Detection

Two portable ultrasonic instruments for detecting flaws in rails without removing them from the track were exhibited by Mr. J. Taylor Thompson, Civil Engineer, British Railways, London Midland Region and by Mr. C. E. Dunton, Chief Civil Engineer, London Transport Executive. These were the Sonirail rail flaw detector supplied by Matisa Equipment Limited, London, and illustrated in our issue of April 23, and the Audigage rail flaw detector made by Branson Instruments Inc., of Stamford, Connecticut, U.S.A.

The latter instrument consists of a small battery-operated ultrasonic frequency generator and receiver in a single unit weighing with batteries 11 lb. carried in a pack on the operators' back, a single transmitting and receiving crystal probe mounted on the end of a long handle, and a pair of headphones; the presence of cracks is detected by a lowering or cessation of the continuous signal tone heard in the headphones.

An additional model, the Covermeter, also was shown as part of this exhibit. This device comprises a boxed instrument about one foot cube with vertical dial face; a 6-V. accumulator, and a search unit shaped like a deep wooden float about the size of a brick. The Covermeter indicates the depth of cover of reinforcement from 2 in. and also the axis and position of reinforcement within its range. It may be operated either from an accumulator or from a.c. circuits. The depth of cover is read directly from a dial. The instrument is made by Koelectric Limited, Ealing.

Repointing Deteriorated Brickwork

A method for repointing deteriorated brickwork at high speed by using foamed mortar and an extrusion gun, developed by the Western Region of British Railways, was exhibited by Mr. M. G. R. Smith, Civil Engineer, Western Region. Essentially, the method is that of propelling foamed mortar through a gun into previously cleaned joints. The cleaning is effected mechanically by high pressure jets of water containing a small percentage of detergent.

The foamed mortar is prepared in a vortex type mixer and placed in pressure pots from which it is brought to the guns via hosing by compressed air. The pressure in the pressure pots is regulated so that the foamed mortar will just keep flowing through the hosing and stem of the gun at about 1/2,000 cu. secs.

An auxiliary air supply to the guns is controlled by the gun operator with a finger-tip valve and enters the foamed mortar stream just before it emanates from the nozzle. The nature of the jet is varied instantaneously to suit the depth of the joint, the wetness, the angle of the brickwork and so on. Rates of pointing of 25-30 sq. yd. per gun per hr. can be maintained over lengthy periods.

Also shown by Mr. M. G. R. Smith was a half through type welded plate girder railway bridge with precast prestressed concrete unit decking. The models showed in one-quarter full size the end of a unit and the connections between the unit and a main girder, and in full size the application of torque-multiplying and torque-limiting spanners for tightening the high strength bolts carrying the moment stresses at one of the connections.

A one-eighth in. scale model of a round-

about taking five roads on one level under the Southern Region electric line from London to Reading was shown by Mr. J. T. Kendal, Chief Engineer, Bracknell Development Corporation. Where a new road crosses the railway four existing minor roads meet under an existing 90 years old brick arch bridge which is sub-standard both in width and height. It was finally decided to construct a large roundabout under the railway at this point and, though this means the construction of two new bridges and the filling up of the arch of the old bridge, it offers a far more satisfactory solution.

Reconstruction at Potters Bar

A model to the scale of 1/16 in. to one ft. showing the reconstruction of the passenger station and goods yard at Potters Bar necessitated by the widening of the main line was exhibited by Mr. J. I. Campbell, Civil Engineer, British Railways, Eastern Region. This work was described and illustrated in our issue of January 1, 1954.

HUNTING GROUP: CHANGE OF ADDRESS.—The new headquarters of the Hunting Group of Companies has been set up at Norwich House, 4, Dunraven Street, Park Lane, London, W.1. The London office of Hunting & Son Ltd. has been transferred to the same address, as has the registered office of Hunting Aerosurveys (Holdings) Limited. The telephone number of the new premises is Hyde Park 9781.

WESTINGHOUSE STAND-BY AIR COMPRESSORS.—The Westinghouse Brake & Signal Co. Ltd. has supplied seven sets of stand-by steam-driven 8½ × 150 cross compound air compressors for the supply of air under emergency conditions at the Coryton oil refinery of the Vacuum Oil Co. Ltd. Under normal condition air from the main is fed into a receiver at the various plants, from which instruments receive their supply. The stand-by compressor is connected to the receiver, and when pressure drops a Westinghouse governor cuts the steam compressor at full speed and maintains air supply to the various instruments. The set returns to its stand-by condition as soon as the normal air supply is restored.

Beyer, Peacock & Co. Ltd. Centenary Celebrations at Manchester

Gorton Works receives some 10,000 *visitors; new staff sports ground opened*

On June 19 Beyer, Peacock & Co. Ltd., celebrated its century in locomotive building at its Gorton Works, Manchester. The history of the firm was outlined in an editorial article which appeared in our February 19 issue.

The centenary celebrations on June 19 comprised a showing of colour films in the morning, an "At Home" at the works in the afternoon, and the official opening of a sports ground in the evening. Employees and their immediate families participated in the events.

In the morning the Company's film "Beyer-Garratt Locomotives in New South Wales" was shown at the Alhambra Theatre, Openshaw; it is being shown on subsequent Saturday mornings. There is a 16 mm. colour and sound film including scenes in the production of these locomotives at the Gorton Works and of them in service in New South Wales.

The film is intended to promote the business of the firm in the widest possible sense and Mancunians will no doubt be proud to see their efforts so recorded. In addition to the main feature film a short documentary supplied by the British Transport Commission was shown entitled "Thirty Million Acres" which shows scenes of the English countryside and the relationship between agricultural production in this country and British Railways efforts to move it.

At 2.30 p.m. the "At Home" at the Works was officially opened by the Lord Mayor of Manchester, supported by Mr. W. H. Oldfield, M.P. for Gorton, and Mr. H. Wilmot, Chairman & Managing Director, Beyer, Peacock & Co. Ltd. Every employee was admitted by ticket and television sets were given as prizes in a draw in connection with these tickets. Visitors were able to see special exhibits of locomotives in current production and some museum pieces. One of the new "60" class Beyer-Garratt locomotives for the metre-gauge East African Railways was in steam in the yard, and another of this class was specially prepared and painted for close inspection. Another exhibit was the Tasmanian Garratt locomotive, the first one of the type ever built, and, as an object of technical interest, brought back to its original home. This locomotive had a total weight in working order of only 34 tons compared with types recently built at Gorton weighing nearly 260 tons. Another interesting exhibit was little *Dot* which was built in 1887 and worked for nearly 40 years on internal haulage at the Works. As many as 10,000 visitors toured the Works.

Sports Ground

On the Saturday evening the new sports ground at Audenshaw was officially opened by Mrs. H. Wilmot, on behalf of the company, and all employees and their immediate families were invited. Some 2,500 attended the opening. The land has been drained, reclaimed and converted into a most attractive ground. It includes bowling greens, hard tennis courts suitable for play throughout the year, and a cricket field all with their pavilions. The ground is some two miles from the works and within easy reach of employees' homes by public transport. It is to be maintained by a full staff, including a resident groundsman, and detail management will be in the hands of a committee elected by the workers themselves. Other sports grounds exist at Audenshaw and no doubt Gorton's teams will continue to distinguish themselves in local competitions. A plaque in bronze was unveiled by Mrs. Wilmot to mark the official opening.

One of the accompanying illustrations shows a group in the Board Room at the works at Gorton, including (from left to right):—

Mr. W. H. Oldfield and Mrs. Oldfield; Mrs. L. T. Dawes; Mr. H. Wilmot; the Lord Mayor and Lady Mayoress of Manchester; Mrs. H. Wilmot; Mr. S. Hadfield, Director & Technical Manager, Beyer, Peacock & Co. Ltd., and Mrs. Hadfield; and Mr. L. T. Dawes, Director and Secretary & Commercial Manager, Beyer, Peacock & Co. Ltd.

(Left) some of the many visitors in the boiler shop; (right) a group in the Board Room at Gorton Works, Beyer, Peacock & Co. Ltd., on the occasion of the "At Home"

Swansea & Mumbles Railway 150th Anniversary

Celebrations attended by Minister of Transport & Civil Aviation

The Swansea & Mumbles Railway, which half a century ago achieved the distinction of being the first public railway in the world to celebrate its centenary, is adding to this distinction during the present week by commemorating the 150th anniversary of its formation. Among its many claims to distinction are the facts that it was the world's first passenger railway, and survives as the oldest independent line, unaffected both by railway grouping and by nationalisation. Reference to some of the principal points in its long history was made in an editorial note last week.

The chief items in a week's programme of events took place on Tuesday last, the actual anniversary of the incorporation of the Oystermouth Railway or Tramroad Company on June 29, 1804. In the morning, a special train left Rutland Street Station, Swansea, conveying a party of distinguished guests to Southend, where some of the main demonstrations took place, including a procession of vehicles old and new. The procession was led by a facsimile of the original horse-drawn coach with which the pioneer passenger service was begun on March 25, 1807. Among the passengers were Sir Gilmour Jenkins, Permanent Secretary to the Ministry of Transport; the Mayor of Swansea; and Major C. G. Traherne, Lord Lieutenant of Glamorgan. The other vehicles contained parties in period costumes.

Photographic Exhibition

The guests then went on to Mumbles, where a photographic exhibition at Pier Hotel, Mumbles, illustrating the development of the Mumbles Railway, was opened formally by Mr. W. T. James, O.B.E., Chairman of the South Wales Transport Co. Ltd., the lessee of the line. This exhibition will remain open until July 11.

The party returned by special train to Swansea Guildhall for a reception and luncheon. Mr. James, the chairman, was supported by Messrs. Raymond W. Birch, P. G. Stone Clark, and John S. Wills, directors of the South Wales Transport Co. Ltd., Mr. W. M. Dravers, the General Manager, Mr. I. M. Smith, Secretary, and the principal officers. Mr. H. C. Drayton, Chairman of the British Electric Traction Co. Ltd. (with which the Swansea & Mumbles Railway is associated), also took part, accompanied by Mr. Kenneth E. Garcke and Mr. R. J. Ellery.

At the luncheon, the principal guest was Mr. Alan Lennox-Boyd, Minister of Transport & Civil Aviation, who proposed the toast of the Swansea & Mumbles Railway. He expressed regret that he had missed the railway pageant by reason of a Cabinet meeting that morning, but explained how he had been able to join the party later by means of a B.E.A. helicopter from South Bank to London Airport, and thence to Fairwood Aerodrome, Swansea, in a 58-minute flight in a Ministry of Transport Dove plane. He mentioned his own political association with the district at the beginning of his career, when he stood unsucessfully for the Gower constituency in 1929. In wishing the railway well, he spoke of the recent challenge in Parliament to its status as a railway, in connection with the Transport Charges Bill, and said he was glad that the somewhat impudent suggestion that it was akin to a tramway was rejected. The Mumbles Railway had a capacity and frequency of service which were noteworthy.

In response, Mr. James touched on some of the lesser-known features in the history of the railway, and of the justifiably great pride taken in Wales in the possession of a line which was the oldest in the world to retain its separate identity under that form of private enterprise which gave Great Britain, and indeed most of the world, the transport systems which are the life blood of modern civilisation. Mr. James particularly regretted the absence of Mr. K. W. C. Grand, Chief Regional Manager, British Railways, Western Region, by reason of ill-health, and expressed the hopes of all there that the sea voyage he was at present taking would restore him to full health.

Mr. Drayton proposed the toast of the Town and Trade of Swansea, to which the Mayor, Alderman T. H. Harris, responded.

Improvement Scheme at Holyhead and Dublin

At a luncheon in Dublin on June 17 at which Mr. T. C. Courtney, Chairman of Coras Iompair Eireann, and representative of the Republic of Ireland, was present, Mr. J. W. Watkins, Chief Regional Manager, London Midland Region, said that work was to begin in the autumn on a £400,000 scheme to provide improved cranage and terminal facilities at Holyhead and Dublin North Wall to speed up cross-channel cargoes. The project is designed to meet the increasing and changing trend in trade between the Republic of Ireland and Great Britain.

Mechanical Handling Equipment

At Dublin North Wall two 7½-ton electric transporters are to be erected and the existing cartage strength is to be augmented by a six-ton mechanical crane, a six-ton mechanical horse unit and 50 six-ton trailers for container traffic. The electric transporters will have a clear longitudinal travel of 100 ft., and be capable of plumbing the full breadth of ship and shed.

A covered reception deck and storage shed is to be built and a loaded container and heavy dutiable traffic bond erected on part of an area of land north of the cattle pens, originally used by Dublin Corporation, and recently leased to British Railways from C.I.E. The bonded area will have a covered examination deck and requisite accommodation for Customs officers and British Railways staff, with parking area for approximately 126 containers and concrete roadways for mobile crane working.

The civil engineering work will be carried out by Dublin Ports & Dock Board and the other projects by C.I.E. Local labour will be employed.

A recent addition at Holyhead was a 20-ton semi-portal travelling crane. The port is now to be equipped with four 7½-ton electric transporters (two at the "Dublin" berth in the export shed and two at the "Dublin" berth in the import shed). Four additional sidings will be constructed to hold 160 wagons on the east side of the export quay.

An order for the six transporters has been placed with the Clyde Crane & Engineering Company, and it is expected the first one, for North Wall, will be delivered in August, 1955, and the others at the rate of one a month afterwards.

U.T.A. and G.N.R. Summer Services

The Ulster Transport Authority's summer timetable came into operation on June 21. About 3,500 rail-road connections are made each week at various railheads, including those of the Great Northern Railway. Details of cross-channel boats and air services are included. Some extra trains have been put on and some departure times changed. On the Bangor line between 5.5 p.m. and 5.55 p.m. ten trains will be operated from Belfast. There are additional steamship connections and Belfast Corporation provides buses to meet ships on arrival at Belfast and convey passengers and hand-luggage to stations and bus terminals.

The G.N.R. summer timetable covering the period from June 27 to September 5, gives a faster service to passengers to Belfast by the 9 a.m. express from Dublin. From Dundalk, this train runs in two sections. The first, with Belfast passengers only, runs through non-stop, and arrives at 11.40. The second section, with a through carriage for Londonderry, calls at Goraghwood (for Newry and Warrenpoint), Portadown and Lurgan, and reaches Belfast at 12.35.

On Sundays a train leaves Belfast for Dublin at noon, connecting with the 9.45 a.m. Londonderry to Belfast express at Portadown. The returning train leaves Dublin at 5 p.m. and connects with the 7.30 p.m. Belfast to Londonderry express at Portadown. There is a through Londonderry-Dublin restaurant car by these services in each direction.

On weekdays a fast diesel express train with a through coach for Pettigo and Bundoran, leaves Belfast at 9 a.m. and runs via Armagh and Clones to Enniskillen. The through coach is attached to the Bundoran express from Dublin at Clones, due at Pettigo at 1.40 and Bundoran at 2 p.m.

The return diesel express arrives at Enniskillen at 12.30 and calling at Clones, Monaghan, Armagh, and other principal stations, arrives at Belfast at 3.30 p.m. There is a through coach for passengers for the Belfast direction on the 12.20 p.m. Bundoran express, connecting at Clones with the 2.55 p.m. diesel express which reaches Belfast at 5.10 p.m. Newcastle and Warrenpoint services are augmented.

POTTERIES MOTOR TRACTION CO. LTD.—At the annual meeting of the Potteries Motor Traction Co. Ltd., held on June 1, Mr. Raymond W. Birch, Chairman & Managing Director, said that despite economies in operation, wage increases and new services which were not yet profitable had made it necessary to ask for increases in fares. The fuel tax had contributed largely to this situation. He welcomed the report of the Thesiger Committee but said that he would like to see the proposal for licenses for private hire work rejected.

Parliamentary Notes

Post Office Underground Railway

Earl De La Warr (Postmaster General) moving the Second Reading of the Post Office (Site and Railway) Bill said that the expense of the scheme was greatly increased by the fact that they had to alter the direction and placing of the Post Office underground railway.

The Second Reading was agreed to.

Questions in Parliament

Railway Improvements

Sir Alfred Bossom (Maidstone—C.) on June 21 asked whether the Minister of Transport & Civil Aviation would give a general direction to the British Transport Commission to make a thorough review of the railway system; to improve the present service; and to stop the rise in fares which was causing concern.

Mr. Alan Lennox-Boyd (Minister of Transport & Civil Aviation) replied that he would not.

Railway Reorganisation

In a written reply on June 28 to Mr. Ernest Davies (Enfield East—Lab.), who asked when the White Paper on railway reorganisation would be available, Mr. Hugh Molson (Joint Parliamentary Secretary to the Ministry of Transport & Civil Aviation) replied that he could not yet say, but he could assure Mr. Davies that there would be no avoidable delay.

Traffic Conditions: Victoria Station Area

Squadron-Leader Cooper (Ilford South—C.) on June 25 inquired if the Minister of Transport & Civil Aviation would institute an inquiry into traffic conditions in the Victoria Street-Victoria Station area in order to seek means of relieving the congestion at this point.

Mr. Hugh Molson (Joint Parliamentary Secretary to the Ministry of Transport & Civil Aviation) wrote in reply: While I agree that traffic conditions in this area are far from ideal, I think that the existing one-way system works reasonably well and that no further improvements are possible until a scheme for the full reconstruction of Terminus Place and Station Yard can be carried out.

Proposed Branch Line Closing

Mr. C. R. Hobson (Keighley—Lab.) on June 24 asked in the House of Commons what action the Minister of Transport & Civil Aviation proposed to take on the application of the Transport Commission for the closing of the Keighley-Queensbury-Bradford branch line for passenger service.

Mr. Alan Lennox-Boyd (Minister of Transport & Civil Aviation) stated in a written reply that he could take no action except on a recommendation of the Central Transport Consultative Committee. The Commission's proposals were shortly to be considered by the Yorkshire Transport Users' Consultative Committee.

Black Harry Tunnel

Mr. W. T. Proctor (Eccles—Lab.) on June 25 asked the Minister of Transport & Civil Aviation what decisions had been arrived at regarding the future of the Black Harry Tunnel; and if he was satisfied that the tunnel was safe from collapse over its whole length.

Mr. Hugh Molson (Joint Parliamentary Secretary to the Ministry of Transport & Civil Aviation) in a written reply stated: This is a matter for the British Transport Commission, but I understand that the future of the line through this tunnel has not yet been decided. In the meantime the tunnel has been strengthened and I am satisfied that the work done should ensure that the tunnel is safe from collapse. I have also been assured that steps will be taken to preserve the stability of the ground over the tunnel if it is abandoned.

Ferry Improvements

Sir Ian Clark Hutchison (Edinburgh West—C.) on June 23 inquired when dredging operations and work on the improvements to the ferry piers at North and South Quensferry, as outlined in the sketch plan prepared by the British Transport Commission and deposited in the Library of the House of Commons, were to be begun.

Mr. Hugh Molson (Joint Parliamentary Secretary to the Ministry of Transport & Civil Aviation) wrote in reply: I am informed by the British Transport Commission that preparations are being made for the work in connection with improvements to the ferry, to begin next month.

Contracts & Tenders

The British Transport Commission has placed the following orders for multiple-unit electric stock for the Wirral services:—

Birmingham Railway Carriage & Wagon Co. Ltd.: 12 trailer coaches, 1st/3rd class; 26 driving trailer coaches

Metropolitan-Cammell Carriage & Wagon Co. Ltd.: 24 motor coaches, third class; 14 trailer coaches, 1st/3rd class

The following orders have been placed for rolling stock for the Malayan Railways:—

Birmingham Railway Carriage & Wagon Co. Ltd.: 200 four-wheel covered wagons

Cravens Railway Carriage & Wagon Co. Ltd.: 100 bogie covered wagons

They will be built to the supervision and inspection of the Crown Agents for Oversea Governments & Administrations.

The United Steel Companies Limited, have signed an order, valued at £5,000,000, to supply 100,000 tons of rails and 4,000 tons of fishplates, as well as fishbolts, washers and turnouts, to Persia.

The General Electric Company, Limited, has received an order from the Netherlands Railways for thirteen twin-cylinder pumpless steel tank rectifier units, each rated at 1,224 kW. at 1,530 volts. The order includes electronic arc-suppression equipment. This contract is the latest of a series received by the G.E.C. in the post-war period for rectifier equipment for the rehabilitation and expansion of the electrified sections of the Netherlands Railways, and brings the total quantity of fixed and mobile rectifiers supplied and on order for this administration to 76 cylinders with a combined rating of over 45,000 kW.

British Railways, North Eastern Region, have placed contracts as follows:—

Noble & Lund Limited, Gateshead: Thornaby, New Motive Power Depot, wheel lathe

H. W. Ward & Co. Ltd., Birmingham: Darlington Locomotive Works, combination turret lathe and capstan lathe

Webster & Bennett Limited, Coventry: Darlington Locomotive Works, boring and turning mill

British Railways, Scottish Region, have placed orders as follows:—

George Wimpey & Co. Ltd., Edinburgh: additional berthing facilities at North and South Queensferry

Craven Bros. (Manchester) Ltd., Stockport: replacement of wheel turning lathe

The Director General of Supplies & Disposals, New Delhi, is inviting tenders for 300 draw brass with nuts finish machined (steel class IV). Tenders, quoting reference SR1/16342-E/III, will be received up to 10 a.m. on July 24.

The Director General, of Supplies & Disposals, New Delhi, is inviting tenders for 48 brake shaft cylinder arms (m.g.). Tenderers should quote reference SR1/17000-D/II; tenders will be received up to 10 a.m. on July 31.

Forms of tender for the foregoing Indian tenders are only available for purchase in India from the Deputy Director General (Supplies), Directorate General of Supplies & Disposals, New Delhi; Director of Supplies & Disposals, Bombay or Calcutta; Deputy Director of Supplies & Disposals, Madras.

If the date for the receipt of the two foregoing tenders does not allow sufficient time for tenderers to obtain tender forms from India, they may submit their quotation to India in their own letter form or by telegram so long as all essential particulars are given and provided they simultaneously apply for the tender forms and return them duly completed as quickly as possible on the basis of advance quotations already submitted.

A copy of the tender form can be examined at the above address on application to the "CDN" Branch of the India Store Department, 32-44, Edgware Road, London, W.2, and the drawings can be seen at the offices of Hodges Bennett & Company, 59-60, Petty France, London, S.W.1, from whom copies may be obtained at a fixed price per sheet.

The Special Register Information Service, Export Services Branch, Board of Trade, reports that the Stores Department, South African Railways, is calling for tenders (Tender No. B.6899), for:—

India Rubber Gear in accordance with Specification CME 13/1933 and Amendment No. 1

9,266 I.R. drawgear springs
30 I.R. springs (auxiliary bearing)
25,000 washers I.R. gauge glass
5,000 washers, rubber, lubricator glass, Detroit and Eureka

The closing date for receipts of tenders is 9 a.m. on August 12. Tenders should be enclosed in sealed envelopes endorsed "Tender No. B.6899: For India Rubber Gear" and addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg.

A copy of the tender documents including specifications and conditions of contract but not drawings may be inspected in Room 801 at the Export Services Branch, Lacon House, Theobalds Road, W.C.1, until July 5, after which date it will be available for loan to United Kingdom firms in order of application. The drawings may be inspected at the drawing office of the High Commissioner for the Union of South Africa, Trafalgar Square, London, W.C.2.

Notes and News

Quantity Surveyor/Estimator Required.—The Eagre Construction Co. Ltd., Scunthorpe, Lincs., has a vacancy for quantity surveyor/estimator. See Official Notices on page 27.

Superintendent Required.—The Tata Locomotive & Engineering Co. Ltd., requires a superintendent to take charge of the general machine shop, toolroom and wheel shop. See Official Notices on page 27.

Diesel-Electric Superintendent Required.—Applications are invited for the post of diesel-electric superintendent, between 30 and 45 years of age, required by the Nigerian Railway. Duties include the supervision of operation, repair and servicing of diesel-electric locomotives under jurisdiction of the district superintendent. See Official Notices on page 27.

Spotters Banned from Willesden Junction.—British Railways (London Midland Region) announce that youths and children will not be allowed to remain on the railway premises at Willesden Junction for the purpose of engine spotting and watching trains. For some time, children have been placing themselves in danger, and the London Midland Region has had to take this step in the interests of safety.

Ryton Station to be Closed.—The North Eastern Region of British Railways announces that on and from July 5, Ryton Station will be closed to all traffic. Alternative road services for passengers are available which give a 10-minute interval service between Ryton and Newcastle. There are also alternative services from Newburn, and a half-hourly service between Newcastle and Hexham. There will be no alteration in the collection and delivery of parcels traffic. Alternative stations at which parcels can be handed in or addressed "to be called for" are Newburn, Blaydon, and Wylam.

Road Accidents, April and May.—Casualties on the roads of Great Britain in May totalled just under 20,000, a decrease of 1,211 compared with May of the previous year. The final figures for April give a total of 17,497, including 347 killed and 4,167 seriously injured.

The "Elizabethan" and "Sud Express" Schedules.—In the editorial article "Summer Speed-Up" in our June 18 issue it was stated that the run of the "Elizabethan" is the first ever scheduled, with any description of motive power of over 300 miles at more than 60 m.p.h. from start to stop. It is, however, surpassed by that of the "Sud Express" which covers the 361 miles between Paris Austerlitz and Bordeaux in 5 hr. 10 min. southbound and 5 hr. 17 min. northbound; the speeds average 70 and 68 m.p.h. respectively. These timings, which apply daily throughout the year, were introduced on May 17, 1953.

Coach Trips to Windsor Royal Show.—The London Transport Executive is arranging special coach trips to the Royal Agricultural Show at Windsor from 13 outer London towns and villages on July 9. One coach excursion will start from East Grinstead and pick up passengers at Felbridge, Lingfield, Redhill, Reigate, Dorking, and Leatherhead. The other excursions will run from Hertford, calling at Welwyn Garden City, Hatfield, St. Albans and Watford. The coaches will leave Windsor for the return journey at 6 p.m. Return fares range from 4s. to 9s.

Green Line Coach Service Improvements.—The London Transport Executive announces that from July 7 a new Green Line coach route, No. 720A, will provide an hourly service each day between Aldgate and Harlow New Town, interworking with route 720 (Aldgate-Bishops Stortford). On routes 723/A/B the present 39-seat coaches will be replaced by double-deck vehicles seating 56. Route 723A will be curtailed at Grays, and a new route, 723B, will cover the section between Grays and Tilbury, via Dock Road. Route 723 will provide a service from Aldgate to Tilbury Ferry via West Thurrock, Grays, and Chadwell St. Mary. Route 723A will run from Aldgate to Grays via Aveley Estate, and 723B from Aldgate to Tilbury Ferry via West Thurrock, Grays, and Dock Road.

Indian Diesel Order for Germany.—The Indian Railway Board has placed with Western Germany an order valued at £132,000 for eight narrow-gauge diesel locomotives.

United Steel Companies Limited Dividend.—The board of the United Steel Companies Limited has decided to pay an interim dividend of 4 per cent for the year ending September 30, 1954. This dividend is on the ordinary capital of £14,000,000. A 7½ per cent final dividend for the 53 weeks to October 3, 1953, was paid in March last on £14,000,000, and a 2½ per cent interim dividend had been paid previously on £10,194,000, making the equivalent of 9 per cent on the present capital.

British Electric Traction Co. Ltd.—Capitalisation.—With a view to bringing the issued capital into closer relationship with the real capital employed in the business, the directors of the British Electric Traction Co. Ltd. have decided to apply to the Capital Issues Committee for consent to the capitalisation of part of the company's reserves for distribution in the form of non-voting "A" deferred ordinary shares of 5s. each (subsequently to be converted into stock) to the holders of deferred and "A" deferred ordinary stock, in the proportion of two "A" deferred ordinary shares for every 5s. of such stock held.

Exhibition of Bakelite Limited Plastics.—An exhibition of Bakelite, Warerite, and Vybak plastics will be held at the Bowchier Hall, Newport Road, Cardiff, on July 6-10. The exhibition, which will be open daily from 10 a.m. to 2 p.m., will demonstrate the different ways in which these plastics are developed from their basic resinous state, and will show their range of application in industry. Some of the latest developments in plastics will also be exhibited, and will include glass-reinforced plastics for motor car bodies; non-corroding, rigid P.V.C. sheet for the construction of chemical plant, and the shell-moulding method of making foundry moulds. Admission is free.

Coventry Gauge & Tool Co. Ltd.—The annual meeting of the Coventry Gauge & Tool Co. Ltd. is to be held on June 3 at Coventry. The chairman, Mr. S. J. Harley, points out that benefits from the 1953 Budget have not been reflected to any great extent in the year ended August 1953. Total current assets at the year end were £1,527,711 compared with £1,604,491 for the previous year. Liabilities were £658,138 (£739,524). During the year 25,000 £1 preference shares were issued as part of the cost of option, shown in the balance sheet at £75,000, to purchase the whole capital of Pitter Gauge & Precision Tool Co. Ltd. Since the date of the accounts this option has been exercised at an additional cost of £86,582. Order books are satisfactory and

Inaugural Run of the "Bristolian"

Photo] ["Bristol Evening Post"

The down "Bristolian" running into Bristol Temple Meads, Western Region, at 10·25 a.m., five minutes ahead of schedule, on its inaugural trip on June 14. The 118¼ miles from Paddington were covered in 100 min. (See our June 18 issue)

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

QUANTITY SURVEYOR/ESTIMATOR required. Permanent position with accommodation offered to suitably qualified man. Apply to the Eagre Construction Co. Ltd., Scunthorpe, Lincs.

CLERK, aged up to 30 years, with experience of railway rates and charges and export procedure, required for transport section of an old-established Mitcham company. Good geographical knowledge essential. Reply, stating experience, salary required and age, to Box 260, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

IMPERIAL CHEMICAL INDUSTRIES LIMITED, Billingham Division, has a vacancy for an Assistant Transport Manager. A university graduate of about 30 years of age who has had practical experience in transport work subsequent to his university career would be preferred. The person appointed will be primarily concerned with road transport, but the post will provide opportunities for gaining experience of other branches of the Division's transport activities. Write, giving details of qualifications and experience, to the Staff Manager, Imperial Chemical Industries, Billingham Division, Billingham, Co. Durham, quoting Ref. M. 6.

HER MAJESTY'S COLONIAL SERVICE, DIESEL ELECTRICAL SUPERINTENDENT, NIGERIAN RAILWAY. Duties include the supervision of operation, repair and servicing of Diesel Electric Locomotives under jurisdiction of the District Superintendent. Appointment is pensionable on agreement in the first instance at fixed salary of £1,435 p.a. or on contract at fixed salary of £1,725 p.a. with a gratuity of £150 p.a. payable on satisfactory completion of contract. An expatriation allowance of £300 or £350 p.a. is also payable in either case. Free first-class passages are provided once each way each tour of an officer and his wife, and an allowance up to £75 each per year is payable in respect of a maximum of 2 children. Furnished quarters, if available, are provided at a rental charge of 10 per cent of basic salary and leave is granted at the rate of one week for each month of resident service after a tour of 18 to 24 months. Candidates between the ages of 30-45 years, must have passed or be exempt from Parts A and B of the examination for either A.M.I.E.E. or A.M.I.Mech.E. They should have served an apprenticeship or recognised training course with a Company manufacturing Diesel Electric Locomotives or have had subsequent experience with such a Company. Similar experience with a first class railway would be accepted. They must have had extensive experience in servicing, maintenance, and repair of Diesel engines, electrical equipment and mechanical parts of Diesel Electric Locomotives and have some railway operating experience. Knowledge of machine and repair shops methods is necessary. Apply in writing to the Director of Recruitment, Colonial Office, Great Smith Street, London, S.W.1, giving briefly age, qualifications and experience. Mention reference number BCD.110/14/023.

WANTED by the Tata Locomotive & Engineering Co. Ltd., Superintendent to take charge of the General Machine Shop, Toolroom and Wheel Shop. A qualified Mechanical Engineer well versed in Machine Shop practice with at least 10 years' experience in a similar capacity will be considered. Applicants must have a thorough knowledge of machines used in Machine, Wheel Shops and Toolroom of modern Heavy Engineering or Railway Works. He must be cost conscious, capable of controlling labour and obtaining good output. Only applications from Engineers of high calibre who have proved successful will be considered. Salary according to qualifications and experience. Write stating age, qualifications, experience, different positions held and previous emoluments drawn. Box No. 7794, c/o Charles Barker & Sons Ltd., 31, Budge Row, London, E.C.4.

TRANSPORT ADMINISTRATION IN TROPICAL DEPENDENCIES. By George V. O. Bulkeley, C.B.E., M.I.Mech.E. With chapters on Finance, Accounting and Statistical Methods. In collaboration with Ernest I. Smith, F.C.I.S., formerly Chief Accountant, Nigerian Government Railway. 190 pages Medium 8vo. Full cloth. Price 20*s* By post 20*s*. 6*d*. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25*s*. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press, Limited 33, Tothill Street, London, S.W.1.

export sales and actual exports showed an increase over the year. Mr. Harley refers to the increasing competition in overseas markets and claims that prices quoted in many cases prove to be well below those which his firm must quote to cover costs. Group trading profits were £302,523 (£308,621) and taxation included E.P.L. £48,000 (£36,000). The recommended ordinary dividend takes £30,000 (£26,250), and has been raised from the equivalent of 4⅛ per cent tax free to 5 per cent.

Liquid Soap Dispenser.—A soap dispenser known as the W-D, of which it is stated some 40,000 have been purchased by British Railways, has been evolved by Waddington & Duval Limited, 35, West Hill, London, S.W.18. It is claimed that the dispenser, which is pressure die cast, and chromium plate finished, is proof against theft. The only moving part is the plunger, which is self-lubricating. Soap is dispensed by an annular aperture surrounding the plunger, which when pressed, ejects 0·8 c.c of liquid soap. A feature of the design is that there is no hole that can become blocked.

Stewarts and Lloyds Limited Shares.—The results of the offer for sale of 10,000,000 ordinary £1 shares in Stewarts and Lloyds Limited were announced by the Iron & Steel Holding & Realisation Agency on June 27. The number of applications was some 13,000 for a total of about 15,500,000 shares. Of these, some 7,000 applications were from persons who were on the share register of Stewarts and Lloyds Limited on February 14, 1951. Applications by former holders up to and including 2,000 shares and other applications up to and including 1,000 shares have been accepted in full. Larger applications have been scaled down.

International Pallets Committee.—A meeting of the Pallets Committee of the International Organisation for Standardisation was held at the British Standards Institution headquarters at 2, Park Street, London, W.1, from June 21 to 23. This was preceded by a meeting of the Working Group. There were 38 delegates from nine countries: Australia, Belgium, France, Germany, Netherlands, Norway, Sweden, Switzerland, and the United Kingdom. Observers from the United States, the Economic Commission for Europe, the International Cargo Handling Co-ordination Association, the International Container Bureau, and the International Union of Railways were also present. A number of resolutions was agreed and other matters referred to the Working Group which will meet in Amsterdam in a few months' time.

Taltal Railway Co. Ltd. Meeting.—The annual meeting of the Taltal Railway Co. Ltd. was held in London on June 16. Mr. C. H. Pearson, the Chairman, said that the year to June 30, 1953, had been disappointing. A loss of nearly £18,000 had been incurred and the adverse balance in the profit and loss account was £144,285. This position was brought about by the insufficiency of tariff increases granted by the Chilean Government, which did not meet rising costs. A decline in nitrate production had aggravated the difficulties. A further application for a substantial increase in tariffs was now being prepared.

Holiday Runabout Tickets

A new poster produced by the North Eastern Region to advertise 7-day holiday runabout tickets in Yorkshire

Railway Convalescent Homes.—A balance of income over expenditure of £21,824 is shown in the accounts of the Railway Convalescent Homes for the year ended December 31, 1953. Collections from railway staff during the year amounted to £160,586, compared with £167,851 in 1952. Donations totalled £1,262 (£1,108). With receipts from investments and sundry sources the total income was £167,669 (£174,344). During 1953, 6,993 patients were received, and the grand total of patients since the commencement of the service is now 227,755. The President for 1954 is Mr. W. P. Allen.

Motor Rail Limited Results.—The profit for the year ended March 20 last of Motor Rail Limited, after all charges and depreciation, and including surplus on sale of assets of £3,504 (£1,084), but before taxation, was £86,869, against £83,527 in the previous year. Taxation amounted to £53,400 (£54,700), leaving a net profit of £33,569 (£28,827). A dividend of 10 per cent is recommended, subject to the approval of resolutions to increase the issued capital to £175,000 (12½ per cent on £125,000). A sum of £22,624 (£18,635) is placed to reserves, and £7,648 (£6,586) is carried forward. The meeting will be held on September 1.

Ruston & Hornsby Limited Results.—An ordinary dividend of 12½ per cent is announced by Ruston & Hornsby Limited for the year ended March 31 last. This is the same as in the previous year, but the figure then included a Coronation bonus of 1½ per cent. Consolidated net profits were £1,062,703 (£1,126,522) after tax of

£1,164,382 (£1,395,380), depreciation £458,185 (£375,425), and £120,000 for increased cost of plant replacement (same). Debenture interest amounted to £15,460 (£15,491). Subsidiaries retained £323,426 (£303,047), leaving parent's net profit at £739,277 (£823,475). General reserves receive £440,488 (£524,918), ordinary dividend absorbs £281,875 (same), while £255,227 (£251,238) is carried forward. Current assets stood at £11,739,025 (£11,251,435) and current liabilities at £2,755,412 (£2,586,099), making net assets £8,983,613 (£8,665,336). Fixed assets reached a total of £3,453,095 (£2,888,884) and trade investments £1,340,917 (£1,404,858).

Antofagasta (Chili) & Bolivia Railway Co. Ltd.—The directors of the Antofagasta (Chili) & Bolivia Railway Co. Ltd. are to pay a dividend of 2½ per cent, less tax, on the 5 per cent cumulative preference stock for the half year ended December 31,1946.

The British Aluminium Co. Ltd.—At the recent annual general meeting of the British Aluminium Co. Ltd., Viscount Portal, Chairman presided. He said that the consolidated income for the year after tax was £409,699, compared with £684,999 for the year before. They had had to absorb a variety of increased costs over which they had no control. Home business showed improvement but export business remained difficult. One of the greatest difficulties was uncertainty as to future price trends. The Chairman alluded to the fluctuating price of ingot metal, and said that before the war this country was a seller of ingot, but today our rolling mills consumed about twice our own production, so that we had no say in fixing the market price of ingot. There were indications that the greater use of aluminium in building and construction would be maintained and much increased.

Metropolitan Railway Surplus Lands Co. Ltd.—The annual meeting of the Metropolitan Railway Surplus Lands Co. Ltd. will be held in London on July 8. The Chairman, Sir Bernard Docker, said in his circulated statement that discussions with the London Transport Executive were still in progress on the eventual rebuilding of many of the company's properties. A basis for agreement existed which would be mutually advantageous. The rent roll of the company continued to grow, and the earnings from Ortem Estates Limited should be maintained. He repeated his statement of the previous year that expanding revenues should, from time to time, permit modest increases in the dividend. The financial results were given briefly in our issue of May 28.

Blaw Knox Limited Meeting.—The annual meeting of Blaw Knox Limited was held in London on May 6. In his statement, previously circulated, the Chairman, Sir Geoffrey D. Burton, said that profit for the year ended December 31, 1953, amounted to £182,838. The trading profit was approximately the same as in 1952, but there had been a net reduction in provision for taxation. On the construction machinery side of the business the volume of new orders in all departments was satisfactory, especially when the more difficult trading conditions were considered. In these conditions great efforts were needed to secure an adequate flow of new orders and visits had been made to some 40 overseas countries in 1953 in order to develop and strengthen the company's overseas distribution. In the Watford and Rochester works production had been well maintained, but higher production costs and the reduction of selling prices in the face of keen competition had lowered the overall profit margin. There was unquestionably a reduced demand for the company's products, but he was confident that they would measure up to the sterner trading conditions. The report and accounts were adopted, and the final dividend of 20 per cent, making 30 per cent, less tax, for the year, was approved. At a subsequent extraordinary meeting a proposal to capitalise £49,111 of the unappropriated profit, to be applied in paying up and issuing ordinary shares, was sanctioned.

Maidstone & District Motor Services Limited.—A dividend of 7½ per cent on the ordinary stock has been recommended by the directors of the Maidstone & District Motor Services Limited for the year ended March 31, 1954. This compares with 5 per cent in the previous year. The group net profit is £204,179 (£90,429) after tax deduction of £78,136 (£45,192) and depreciation £211,148 (£180,778). The net profit of the parent company is £174,379 (£78,086). General reserve receives £100,000 (£46,094) and £136,565 (£131,211) is carried forward.

Forthcoming Meetings

July 8 (*Thu.*) to July 13 (*Tue.*).—Railway Students' Association. Annual Convention at Exeter.

Until September 25 (*Sat.*).—"Popular Carriage" Exhibition (Two centuries of carriage design for road and rail) in the Shareholders' Meeting Room, Euston Station, London, N.W.1. Weekdays 10 a.m. to 7 p.m.; Sundays 2 to 7 p.m.

Railway Stock Market

Although the prevailing tendency was to await the outcome of Sir Winston Churchill's visit to the U.S.A. and business was less brisk, markets held firm and maintained the greater part of last week's gains. In fact, *The Financial Times* index for industrial ordinary shares reached a new all-time record this week. There was, however, an easier tendency in British Funds. In some quarters it is argued that either British Funds are too low or leading industrial shares too high. It is true that numerous shares have now risen to levels at which they yield less than 3½ per cent War Loan, but on the other hand, the rise in industrials reflects optimistic hopes of further dividend increases next year, particularly from companies whose net profits will benefit from the end of E.P.L. If these hopeful views persist, share values could go considerably higher, but the trend of international news must of course be expected to be an uncertain factor on markets. In view of the big gains already shown this year in many groups of securities, it would not be surprising if there is a tendency to give more attention to foreign rails, some of which have good capital appreciation prospects in the event of take-over developments.

Mexican Central "A" bearer debentures were a strong and active feature this week, but after advancing to 79, eased to 77½ on profit-taking. Canadian Pacifics eased to $47¼ xd, but the 4 per cent preference stock and the 4 per cent debentures have firmed up to £68¾ xd and £89½ respectively. White Pass no par value shares have not held best prices at $25½. There was a little selling of United of Havana stocks, the second income easing to 40¾, and the consolidated stock was 6. Manila Railway issues held steady with the "A" and "B" debentures at 146 and 139 respectively, the preference shares 19s. 1½d. and the 1s. ordinary shares 9s. 1½d.

Antofagasta ordinary stock was 8½ and the preference stock 41. From the point of view of scope for eventual capital appreciation and the prospect of a good return, bearing in mind the arrears of interest outstanding, Antofagasta Railway preference may very well have bigger possibilities than any other foreign railway stock, assuming an investor is prepared, if necessary, to take a long view. San Paulo ordinary units were 3s. 6d. and Nitrate Rails shares 21s., but Brazil Railway bonds changed hands at the lower level of 7¾.

In other directions, Costa Rica ordinary stock has changed hands around 8¼ and the 6½ per cent second debentures at 47½. Chilian Northern 5 per cent debentures marked 28, Paraguay Central 6 per cent debentures 19½ and the "D" income stock 2½ Dorada Railway ordinary stock remained at 73, and Taltal Railway shares were 13s. 6d. Egyptian Delta Light Railways 5 per cent debentures have transferred at 15½.

Midland of Western Australia ordinary stock showed business at 21½ and the 4 per cent debentures at 39½, while Emu Bay 5 per cent debentures changed hands around 44. Nyasaland Railways 3½ per cent debentures marked 80 and the ordinary shares 4s. 1½d.

Road transport shares were firmly held, as usual, with Southdown at 32s. xd., Lancashire Transport 57s. and West Riding 32s. B.E.T. were active under the influence of the raising of the dividend to 50 per cent, the coming 200 per cent share bonus and the directors' forecast of a dividend of at least 20 per cent next year on the trebled capital. The 5s. "A" deferred units have advanced to 55s. 6d. xd.

A big talking point has been the Stewarts and Lloyds issue. On the whole the response from the public, although disappointing, was regarded as good as could be expected in view of the political risk of re-nationalisation. Stewarts and Lloyds shares opened at a discount of 7½d., but later this was narrowed to only 3d. Based on the 12½ per cent dividend, the shares offer a yield of over 7½ per cent, which must be regarded as generous, even allowing for the political risk. Steel shares are attractive because of their generous return, and moreover, though there is little scope of capital appreciation, there is, on the other hand, unlikely to be any big fall in price. Even in the event of re-nationalisation it seems improbable that shareholders would have to accept less than the low prices at which the shares have been re-issued. Vickers at 35s. 3d. have not held best levels, but were active, as were Cammell Laird 5s. shares at 16s. 3d. Tube Investments rose to 67s. 3d.

Among shares of locomotive builders and engineers, Beyer Peacock were 39s. 3d., Charles Roberts 5s. shares 9s. 4½d., Birmingham Carriage 25s. 9d., Hurst Nelson 42s. and North British Locomotive 17s. 3d. Vulcan Foundry rose to 28s. 6d., Gloucester Wagon 10s. shares were 17s. and Wagon Repairs 5s. shares 13s. 1½d.